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U.S. Department of the Interior
Bureau of Land Management
Wyoming State Office

COMPLETED

Rawlins District Office/Great Divide Resource Area

July 1995

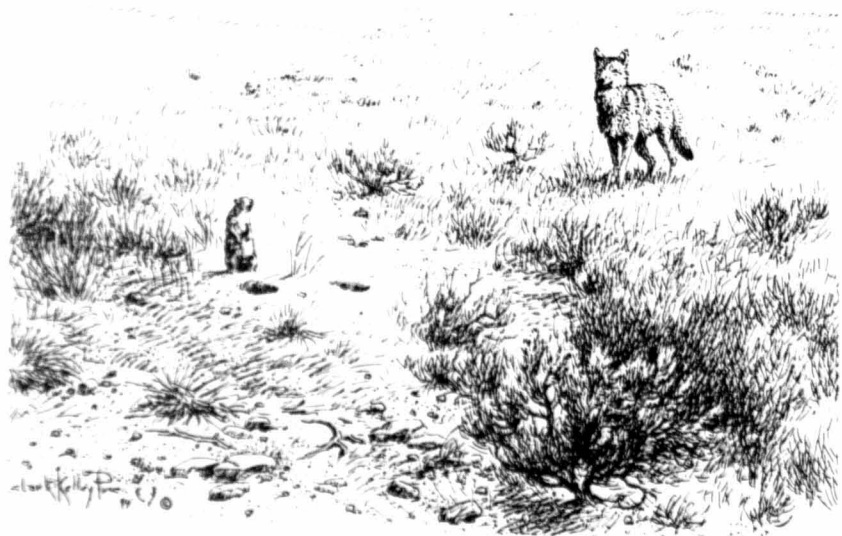


FINAL Environmental Impact Statement

Union Pacific Resources Company
Greater Wamsutter Area II
Natural Gas Development Project

15-041335

The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield; a combination of uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness and natural, scenic, scientific, and cultural values.



BLM/WY/PL-95/012-1310



United States Department of the Interior

BUREAU OF LAND MANAGEMENT

Wyoming State Office
P.O. Box 1828
Cheyenne, Wyoming 82003-1828

In Reply Refer To:

1793 (930)
Wamsutter
(930DBorsey)
PHONE NO: 307-775-6290
FAX NO: 307-775-6082

July 20, 1995

Dear Reader:

This Final Environmental Impact statement (FEIS) is prepared pursuant to 40 CFR 1500 - 1580 on the proposed *Greater Wamsutter Area II Natural Gas Development Project* and is submitted for your review and comment. This FEIS has been prepared to analyze the potential impacts from additional infill natural gas development proposed by several companies within the existing Greater Wamsutter Area II Natural Gas Field located in Carbon and Sweetwater Counties, Wyoming. The proposed action is the Bureau of Land Management (BLM) Rawlins District preferred alternative for this Final Environmental Impact Statement.

If you wish to comment on the FEIS, we request that you make your comments as specific as possible. Comments will be more helpful if they include suggested changes, sources, or methodologies. Comments that contain only opinions or preferences will not receive a formal response; however, they will be considered and included as part of the BLM decisionmaking process.

The purpose of this document is to inform the public of the impacts associated with implementing the companies' infill drilling proposal and to evaluate alternatives to the proposal. This FEIS is also intended to provide information to other regulatory agencies for use in their decisionmaking process for other permits required for implementation of the project.

Please retain this copy of the FEIS for future reference. A copy of the FEIS has been sent to affected Government agencies and to those persons who responded to scoping or otherwise indicated to BLM that they wished to receive a copy of the FEIS. Copies of the FEIS are available for public inspection at the following locations:

Bureau of Land Management
Great Divide Resource Area Office
812 East Murray
Rawlins, Wyoming 82301

Bureau of Land Management
Rawlins District Office
P. O. Box 670
Rawlins, Wyoming 82301

Bureau of Land Management
Wyoming State Office
2515 Warren Avenue
Cheyenne, Wyoming 82001

Sincerely,

Alan R. Pierson
State Director

DEPARTMENT OF THE INTERIOR

FINAL ENVIRONMENTAL IMPACT STATEMENT

on the

GREATER WAMSUTTER AREA II NATURAL GAS DEVELOPMENT PROJECT

Carbon and Sweetwater Counties, Wyoming

July 1995

Prepared By:

This Environmental Impact Statement was prepared by *Gary Holsan Environmental Planning* environmental consulting firm, with the guidance, participation, and independent evaluation of the Bureau of Land Management (BLM). The BLM, in accordance with Federal Regulation 40 CFR 1506.5(a) & (b), is in agreement with the findings of the analysis and approves and takes responsibility for the scope and content of this document.

Wyoming State Director

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE
GREATER WAMSUTTER AREA II NATURAL GAS DEVELOPMENT
CARBON AND SWEETWATER COUNTIES, WYOMING

() Draft

(X) Final

U.S. Department of the Interior
Bureau of Land Management

Abstract:

This final Environmental Impact Statement assesses the environmental consequences of a proposed natural gas development project in southwestern Carbon and eastern Sweetwater Counties, approximately 45 miles southwest of Rawlins, Wyoming. Public scoping commenced on December 13, 1993. All issues raised during scoping and interdisciplinary team preparation of the analysis were addressed in the Draft Environmental Impact Statement (DEIS). This document should be used in conjunction with the DEIS. Copies of the DEIS are available from the Great Divide Resource Area at the address given on the bottom of this page. The DEIS was made available to the EPA and the public on January 23, 1995 and a notice of availability was published in the Federal Register. A public meeting was held on February 23, 1995 and the comment period closed on March 25, 1995. The Executive Summary from the DEIS, modified as appropriate in response to the public comments, is presented herein. The changes from the DEIS are presented for all other material by corresponding section in this document. Comments on the DEIS that were received from the public and agencies are reproduced in this document and the responses from the BLM are presented. The proposed project entails the drilling, completion testing, operation, abandonment, and reclamation of natural gas production operations by Union Pacific Resources Company, Amoco Production Company, and other operators. The proposed project would use standard procedures as currently employed by other State and regional gas field developments. Under the Proposed Action, a maximum of 750 wells at 300 locations and associated ancillary facilities, roads, and pipelines would result in the initial disturbance of approximately 2,416 acres within the 334,191-acre project area. The BLM has identified the Proposed Action as the Agency Preferred Action. Numerous standard, project-specific, and site-specific mitigation measures would be employed to assure that project impacts are minimized on all important resources. Impacts to most resources would be negligible to moderate during the life of the project. Potentially significant impacts resulting from the project include the changes to visual resources, wetlands, soils, reclamation, and reduction in wildlife habitat. The proposed project would have beneficial impacts associated with increased revenues generated by taxes, royalties, and the use of local goods and services.

Further information regarding this document can be obtained from the address below:

Area Manager
Great Divide Resource Area
Bureau of Land Management
812 East Murray
Rawlins, Wyoming 82301

Date EIS Made Available to EPA and Public:

August 4, 1995

Date By Which Comments Must Be Received:

September 5, 1995

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

S.0 INTRODUCTION

This Final Environmental Impact Statement (FEIS) analyzes the impacts of drilling and production operations in the Greater Wamsutter Area II (GWA II) natural gas-producing area of southern Wyoming. The GWA II analysis area is located in southeastern Sweetwater County and southwestern Carbon County, Wyoming, within Townships 16 through 22 North (T16-22N), Ranges 92 through 95 West (R92-95W), 6th Principal Meridian. The analysis area encompasses 334,191 acres of mixed federal, state, and private lands. Of this total, approximately 146,912 acres are federal, 19,240 acres are State of Wyoming lands, and 168,039 are private lands.

This FEIS has been prepared pursuant to the National Environmental Policy Act and is presented in an abbreviated-format document. Details on the proposed action and alternatives are described in the DEIS (USDI-BLM 1995) according to the following chapters. DEIS Chapter 1 defined the Purpose and Need for the proposed project. Chapter 2 detailed the parameters of the Proposed Action and other alternatives as well as provided a summary of proposed mitigation and monitoring measures to avoid or reduce impacts proposed by Union Pacific Resources Corporation (UPRC) and other GWA II operators (the Operators). Chapter 3 of the DEIS discussed the areas and resources that would be affected under each alternative. Chapter 4 examined the environmental consequences to each resource under each alternative and also provided a summary of additional mitigation measures by resource discipline which were identified during the analysis process. The measures and requirements in the DEIS described how implementation of the Proposed Action or alternatives should be managed to assure minimal impacts in the GWA II analysis area and adjacent lands. The DEIS assumed that all impacts that would occur with implementation of the proposed project could be effectively and feasibly mitigated with the measures presented in the mitigation summaries of Chapters 2 and 4. Chapter 5 of the DEIS summarized the consultation and coordination accomplished with various federal, state, county, and local agencies, elected representatives, environmental and citizen groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action.

The DEIS addressed in detail a maximum development scenario proposed by the GWA II operators (Proposed Action) and three other alternatives as described in greater detail in the following section and briefly summarized here. The Proposed Action would increase drilling production in the GWA II analysis area by allowing the Operators to develop 750 wells and 300 well locations within the analysis area in addition to existing operations. The Proposed Action has been identified as the BLM Preferred Action. The other three alternatives analyzed in this DEIS are 1) Alternative A, which would allow the Operators to develop 300 wells and 250 well locations within the analysis area in addition to existing operations; 2) Alternative B, which would allow the Operators to develop 225 wells and 200 locations within the analysis area in addition to existing operations; and 3) Alternative C, the No Action alternative, which would disallow any further gas/oil development beyond that currently authorized.

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For this FEIS, the Bureau of Land Management (BLM) Rawlins District has identified a preferred alternative based on the analysis of the DEIS and public comment on the alternatives and their associated impacts.

The GWA II natural gas production project EIS was prepared by a third party contractor working under the direction of, and in cooperation with the lead agency for the project, which is the Bureau of Land Management (BLM) Great Divide Resource Area, and Rawlins District Office, Rawlins, Wyoming.

S.0.1 Background

Management of federal lands within the GWA II analysis area is provided by the Record of Decision and Approved Resource Management Plan (RMP) for the Great Divide Resource Area (USDI-BLM 1990a). The proposed natural gas production project and alternatives are in conformance with management objectives provided in the Great Divide Resource Area RMP.

Lands associated with the additional drilling program include those previously analyzed in the GWA Natural Gas Project Environmental Assessment (EA) (USDI-BLM 1992a), and additional mixed federal and private lands located north of Interstate 80 (I-80). The additional area combines with the previously analyzed area to form the Greater Wamsutter Area II (GWA II) analysis area. Currently, natural gas drilling and development activities within the GWA are authorized by the approved GWA EA.

The Decision Record and Finding of No Significant Impact (USDI-BLM 1992a) for the GWA Natural Gas Project provided for permitting a maximum development pattern of 70 new production gas wells within the GWA and associated access roads, pipelines, and other ancillary facilities. Since completion of the EA, 70 wells have been drilled by Union Pacific Resources Company (UPRC) and other operators, with current plans calling for additional production well drilling and development within the GWA II analysis area.

UPRC, Amoco Production Company, (Amoco), and other GWA II operators have proposed to drill and develop 300 additional well locations (750 wells) in addition to the existing drilling and production operations within the GWA II analysis area. This proposal would provide for full development of the natural gas fields within the GWA II analysis area. The precise number of wells, locations of wells, and timing of drilling would be directed by the success of developing drilling and production technology, as well as economic considerations such as drilling and production costs.

The BLM has advised UPRC and the other GWA II operators that an environmental impact statement (EIS) of the GWA II analysis area would be required in view of UPRC and other operators' plans to drill additional infill locations and construct ancillary facilities within the GWA II analysis area in 1994 and beyond at levels not previously analyzed in the GWA EA. The

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GWA II DEIS analyzing the proposed action and alternative actions was distributed in January 1995.

S.1 PROPOSED ACTION AND ALTERNATIVES

S.1.1 Proposed Action

The Proposed Action provides a maximum development scenario of 750 wells and 300 locations within the GWA II analysis area, in addition to existing operations. Under the Proposed Action, once the development drilling program by UPRC is finalized, 225 of the proposed 750 wells with known gas reserves would initially be drilled. This proposed action allows for the continued development of proven natural gas reserves and provides the Operators the opportunity to explore new drilling and production techniques necessary for the development of marginal properties. The remaining wells described in the Proposed Action would be developed over some unspecified time period from late 1996 and several years beyond. The precise number of wells, locations of wells, and timing of drilling would be directed by the success of developing effective drilling and production technologies, and economic considerations. The development scenario would affect 2,416 acres, bringing the total disturbance within the GWA II analysis area to 14,943 acres of land (4.5 percent of the total GWA II surface area). This development scenario would involve clearing land and constructing well sites, access roads, pipelines, and associated facilities.

S.1.2 Alternative A

Alternative A provides an optimal development scenario of 300 wells and 250 well locations within the GWA II analysis area, in addition to existing operations. Should the planned experimental drilling and production techniques prove to be moderately successful, then some, but not all, marginal properties within the analysis area would be developed. The minimum 225 wells and 200 locations would be developed during 1994 through 1996, and the remaining 75 wells (at 50 well locations) would be developed from 1996 and beyond. Alternative A would affect 2,015 acres, bringing the total disturbance within the GWA II analysis area to 14,542 acres (4.4 percent of the overall GWA II surface area). This development scenario would involve clearing land and constructing well sites, access roads, pipelines, and associated facilities.

S.1.3 Alternative B

Alternative B provides a minimum development scenario of 225 wells and 200 locations, in addition to existing operations. Should the planned experimental drilling and production techniques prove not to be economically viable, then the minimum 225 wells (at 200 locations) would be developed during 1994 through 1996. Additional drilling as described in the Proposed Action would not be completed by the Operators. Alternative B would affect 1,613 acres, bringing the total disturbance within the GWA II analysis area to 14,140 acres of land (4.2

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percent of the total GWA II surface area). This development scenario would involve clearing land and constructing well sites, access roads, pipelines, and associated facilities.

S.1.4 Alternative C

Alternative C, the No Action Alternative, implies that on-going natural gas production activities would be allowed to continue by the BLM in the GWA II analysis area, but the proposed full field development program and the other development alternatives would be disallowed. Additional Applications to Drill (APDs) and right-of-way (ROW) actions would be granted by the BLM on a case-by-case basis.

S.1.5 Major Impact Conclusions

The GWA II natural gas development proposal could cause direct and indirect, short-term and long-term, as well as cumulative disturbance of the human and natural environments. Potential environmental impacts that could result from implementation of the Proposed Action and/or the alternatives are detailed in Chapter 4 of the DEIS. A summary of proposed mitigation and monitoring measures to avoid or reduce impacts as committed to by the GWA II operators were presented in Chapter 2 of the DEIS. Chapter 4 summarized the environmental impacts for each resource discipline which were identified during the analysis process. The results are summarized below under each resource element.

S.2 RESOURCE ELEMENTS ANALYZED

S.2.1 Geology/Paleontology

Implementation of the Proposed Action and Alternatives A, B, and C would result in construction excavation associated with the development of well pads, access roads, pipelines and other production facilities which could directly result in the exposure and damage or destruction of scientifically significant fossil resources. The potential magnitude of impact to fossil resources associated with the action alternatives (the Proposed Action, Alternatives A and B) varies proportionally with the total number of wells which would be developed under each alternative. The magnitude of impact for Alternative C - No Action, which would allow additional APDs and ROW action on a case-by-case basis, is unknown at present and would depend on the specific action taken and the specific area involved. Potential for impacts to project facilities as a result of seismic activity is low, as is the potential for landslides and road subsidence that would temporarily close access roads. No significant impacts to important surface resources or other geologic resources would occur under the Proposed Action. Mitigation measures should reduce potential impacts to geologic/paleontologic resources.

Beneficial impacts under the action alternatives include the unanticipated discovery of previously unknown fossils which could occur as a result of construction anywhere in the analysis area. To

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have beneficial impact, such newly discovered fossils must be properly collected and catalogued into a museum repository so that associated geologic data is preserved and available for future scientific study.

S.2.2 Air Quality

Implementation of the Proposed Action and/or Alternatives A and B would result in the construction and operation of additional well sites in the GWA II analysis area. These actions would not pose a significant air quality impact. The airborne pollutant concentrations that would result from the increased well site emissions would meet all Wyoming and federal ambient air quality standards, and would comply with applicable Prevention of Significant Deterioration (PSD) increments. In addition, the impact to air quality related values (visibility, acid deposition, and soils/vegetation) would be below significance criteria levels. Alternative C, the No Action Alternative, would allow on-going natural gas production activities to continue in the GWA II analysis area, but will not exceed the level of significance criteria. Mitigation measures discussed in Section 2.3.4.2.2 should reduce impacts to air quality.

S.2.3 Soils

Implementation of the Proposed Action and/or Alternatives A and B would initially affect 2,416 acres, 2,015 acres, and 1,613 acres of soils, respectively, during construction. Alternative C, the No Action Alternative could continue to add to the 12,527 acres of existing disturbance in the GWA II analysis area as APDs are granted by the BLM. The majority of the GWA II analysis area falls into a sensitive soils category in regard to topsoil depth and quality, with limitations to road and facilities construction, rapid to very rapid runoff potential, and severe to very severe wind and water erosion potential. Impacts resulting from drill pad, access road, facility site, and pipeline ROW construction could include removal of vegetation, exposure of the soil, mixing of soil horizons, soil compaction, loss of topsoil productivity, and increased susceptibility of the soil to wind and water erosion. Although sensitive soils cannot be totally avoided, steep slopes greater than 30 percent, badlands, and soils with high water tables should be avoided. These impacts could be kept to non-significant levels with application of mitigation measures proposed in Section 2.3.4.2.3 of the DEIS and control measures recommended in DEIS Appendix B.

S.2.4 Water Resources

Construction of the proposed drill sites under the Proposed Action and Alternatives A and B could include increased surface water runoff and off-site sedimentation due to soil disturbance; increased salt loading and water quality impairment of surface waters; changes in stream discharge due to project disturbance; changes in groundwater levels, quantity, and quality; and channel morphology changes due to road and pipeline crossings. Under Alternative C, water resources within the GWA II analysis area would remain as described in the Affected Environment (Chapter 3) of the DEIS. The magnitude of impacts to water resources would

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depend on the proximity of the disturbance to the drainage channel, slope aspect and gradient degree and area of soil disturbance, soil character, duration of time within which construction activities would occur, and the timely implementation of mitigation measures. Impacts would likely be greatest shortly after the start of construction activities and would likely decrease in time due to natural stabilization, reclamation, and revegetation efforts. Mitigation measures discussed in DEIS Section 2.3.4.2.4 and other mitigation measures outlined in the Soils and Vegetation Sections of the DEIS should reduce impacts to water resources.

S.2.5 Vegetation/Wetlands

Implementation of the Proposed Action and Alternatives A and B would initially affect 2,416 acres, 2,015 acres, and 1,613 acres of various vegetation cover types, respectively, during project construction. This would add to the existing 12,527 acres of existing disturbance in the GWA II analysis area. Direct impacts include the short-term loss of vegetation (modification of structure, species composition, and areal extent of cover types). Indirect impacts include the short-term and long-term increased potential for weed invasion, establishment, and expansion; exposure of soils to accelerated erosion; shifts in species composition and/or changes in vegetative density; reduction of wildlife habitat; and changes in visual aesthetics. Under Alternative C - No Action, vegetation would continue to be impacted as APDs are granted by the BLM on a case-by-case basis. Except for waters of the U.S. and/or special status plant species and their habitat, a reduction in vegetation density would not be significant because upland vegetation types are relatively common, cover large areas, have wide distribution and occur with high frequency within the project area. Although project implementation could potentially impact the area and functions of wetlands, measures imposed by the RMP and the CWA 404 permitting process would prevent or avoid impacts to jurisdictional wetlands and other special aquatic sites. All alternatives have potential to affect special status plant species or habitat for such species. Given implementation of DEIS Chapter 2 measures and mitigation, no significant impacts are anticipated. Reclamation would be accomplished according to a site-specific reclamation and revegetation plan that uses best management practices.

S.2.6 Range Resources and Other Land Uses

Implementation of the Proposed Action and Alternatives A and B, would initially remove 2,416 acres, 2,015 acres, and 1,613 acres, respectively, from forage production during the construction phase of development operation. Under Alternative C - No Action, the conditions described in DEIS Chapter 3, under Affected Environment, would generally remain unchanged except for disturbances due to vehicular use. Impacts to the range resource would involve loss of livestock forage, potential for livestock loss through theft or vehicular collision, and the introduction of weed species. Most of these impacts would be short-term, lasting only as long as construction activities were on-going. Once production operations are underway and reclamation measures completed, impacts to livestock operations would be minimal. Mitigation measures proposed by

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UPRC and other GWA II operators, as outlined in Chapter 2 of the DEIS and stipulated in the RMP, should reduce or avoid impacts to range resources and other land uses to acceptable levels.

S.2.7 Wildlife

Impacts and potential impacts to wildlife are classified into three basic categories. The first category includes technically significant impacts that have the potential to occur but would be unlikely to occur if prescribed avoidance measures are implemented. Category 1 impacts include 1) increased potential for illegal kill and harassment of wildlife; 2) potential for disruption of raptor and sage grouse nesting activities; 3) potential for striking bald eagles with vehicles; 4) potential to adversely impact black-footed ferrets; 5) potential for displacement of pronghorn from crucial winter range; and 6) potential to adversely affect nesting ferruginous hawks, mountain plovers, loggerhead shrikes, and white-faced ibises.

Category 2 includes technically significant impacts that would occur but that could be reduced to non-significant levels through the application of prescribed mitigation measures. These impacts include: 1) long-term loss of sage grouse nesting habitat; 2) increase in potential for vehicle/wildlife collisions; and 3) long-term loss of crucial big game winter range.

Category 3 includes other important, but technically non-significant potential impacts for which avoidance or mitigation measures may or may not have been prescribed. Category 3 impacts include: 1) long-term and short-term losses of non-crucial habitat of wildlife; and 2) temporary displacement of wildlife during the construction period.

Although the nature of potential impacts to wildlife is identical between the Proposed Action and Alternatives A and B, the potential magnitude of impacts is highest under the Proposed Action, intermediate under Alternative A, and least under Alternative B. This is because of the difference in the number of wells and the associated increase in miles of new roads and pipelines constructed under each alternative. Implementation of Alternative C would maintain the current level of human activity and associated impacts. Given the application of prescribed avoidance and mitigation measures listed in Section 2.3.4.2.7, Appendix A, and under individual species in Section 4.7 of the DEIS, significant impacts to wildlife would not occur.

S.2.8 Fisheries

Although the intermittent tributary drainages on the GWA II analysis area do not support fish populations, the Proposed Action and Alternatives have the potential to affect fish resources and associated values if construction and drilling activities result in 1) increased stream sedimentation; 2) downstream water pollution from accidental discharge of toxic substances; and 3) water flow depletions from Muddy Creek or the Little Snake River. Potential impacts to fisheries resources include the degradation of surface water quality, an increase in stream flow from surface runoff, and a decrease in stream flow from the consumption of groundwater. However, given the

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avoidance and mitigation measures proposed by UPRC, and those described both in Section 4.8, and in the 1988 BLM Medicine Bow-Divide RMP, no significant impacts are expected.

Because endangered and candidate species are so far removed from the GWA II analysis area, no direct effects to fisheries are anticipated. With implementation of the mitigation measures contained in the DEIS in Section 4.8 and in Chapter 2, no adverse residual impacts to fisheries are expected.

S.2.9 Recreation

Well drilling, testing and production operations, and associated site preparation and construction activities such as those proposed for GWA II analysis area have the potential to cause substantial alterations to the recreation setting and recreation opportunities available. Some recreationists could be temporarily or permanently displaced from using certain locations associated with drilling and production activities. Although user displacement would not occur at significant levels, levels of satisfaction with recreation experiences would be reduced due to the redistribution of recreation use patterns, resultant crowding in some locations and increased exposure to noise, dust, vehicle traffic, as well as land and visual disturbances associated with project activities. The Proposed Action as well as Alternatives A and B would have adverse impacts on recreation resource conditions in the project area, despite the measures outlined in Chapter 2 of the DEIS and in the RMP (USDI-BLM 1990a) stipulations. Short-term impacts would be identical for the Proposed Action and Alternatives A and B during the initial two-year development period. Impacts would still persist but at reduced levels over the longer term for the Proposed Action, and to a lesser degree for both Alternatives A and B. Implementation of the No Action Alternative (C) would result in the continuation of existing recreation conditions and activity patterns in the GWA II analysis area.

S.2.10 Visual Resources

Short-term impacts would occur from well construction due to contrasts in line, form, color, and texture associated with equipment and surface disturbance juxtaposed with the existing landscape. Long-term impacts would result from production facilities, access roads, and fugitive dust. The severity of impact depends on scenic quality, sensitivity level, and distance zone of the affected environment, reclamation potential of the disturbed area, and level of disturbance to the visual resource created by the project construction. Under the Proposed Action, impacts would be greatest since this alternative proposes the largest number of wells developed. The Proposed Action and Alternative A could produce significant impacts if all potential well locations in the Class 3 zone, and in the higher sensitivity Foreground-Middleground areas mapped specifically for this proposed project (See DEIS Exhibit 3-10) were developed. Impacts for Alternatives B and C would not be considered significant, but would detract from the experience of motorists, Amtrak passengers, and backcountry recreationists.

S.2.11 Cultural Resources

The GWA II cultural resource database includes at least 1,935 sites, consisting of both prehistoric and historic components. Prehistoric sites in the study area are predominantly open camps, lithic scatters, and features not associated with portable cultural material. Historic site types include historic trails, stage stations, railroad grades and stations, townsites, ranches, and cabins. Potential impacts to specific eligible or unevaluated properties are unknown at this time. In general, the GWA II analysis area has a moderate to high site density, and therefore, high archaeological sensitivity. Certain geomorphic situations have a greater archaeological potential than other areas especially in terms of significant cultural resources. These situations include eolian deposits (sand dunes, sand shadows and sand sheets), alluvial deposits along major drainages, and colluvial deposits along the low slopes of Delaney Rim.

Although the GWA II analysis area has a high degree of archaeological sensitivity, impacts to cultural properties would not be significant. Potential impacts to known and anticipated cultural resources can be alleviated through mitigation measures outlined in Chapter 2 and Chapter 4 of the DEIS. With implementation of mitigation measures discussed in Sections 2.3.4.2.11 and 4.11.6 of the DEIS, no significant impacts to cultural resources would occur in the analysis area.

S.2.12 Socioeconomics

Although neither the Proposed Action nor any of the alternatives would stimulate extremely rapid growth, potential adverse effects may occur, particularly in the town of Wamsutter. Socioeconomic impacts which could arise under the Proposed Action include short-term difficulties involving housing supply, public service provision, and general adjustment problems associated with rapid social and economic change. Alternative A would have these same impacts during the initial 1994-1996 project phase, with much-reduced impacts thereafter depending on the pace of project development. Alternative B would also produce similar effects during the initial 1994-1996 drilling and construction period, but would have only limited effects thereafter. None of the action alternatives are likely to generate widespread dissatisfaction or organized opposition among area residents. Implementation of Alternative C - No Action, would continue the existing socioeconomic conditions and trends in the communities located in and around the project area. In addition to measures listed in Section 2.3.4.2.10 of the DEIS, mitigation procedures described in DEIS Section 4.11.6, and stipulations outlined in the RMP, efforts to accommodate the potentially significant socioeconomic impacts associated with this project would be addressed.

S.2.13 Transportation

Transportation effects of the Proposed Action and Alternatives A and B, would occur primarily on I-80, WY 789, and Sweetwater County Road 4-23. Under the Proposed Action and Alternatives A and B, traffic volumes would increase on highways leading to the analysis area

as well as on county and operator maintained roads. These increases would result from movement of workers, equipment and materials to and from the analysis area to perform drilling, field development, well service, field operations and reclamation activities. Alternative C - No Action would result in transportation conditions similar to those described in DEIS Chapter 3 (Section 3.13). These impacts associated with the Proposed Action and Alternatives A and B would occur throughout the life of the drilling program, but due to the good condition and excess capacity of the highways within the analysis area, these impacts are not considered significant.

S.2.14 Health and Safety

Hazards associated with the drilling program, including construction and operation, are hazards normally associated with heavy construction and industrial work. Potential risks associated with the oil and gas extraction industry, including impacts from road, drill site, and pipeline construction, drilling operations, production operations and project traffic, would mostly be limited to employees and subcontractors. There would be a minor increased risk to the public caused by project implementation resulting from additional drilling and production related traffic in the GWA II analysis area. However, none of these impacts are expected to occur at significant levels. With implementation of mitigation measures in DEIS Section 2.3.4.2.14, no significant impacts should occur with respect to health and safety.

S.2.15 Noise

Implementation of the Proposed Action and Alternatives A and B has the potential to create noise-generated impacts that emanate from machinery utilized during the construction of drill sites, pipelines, access roads, and ancillary facilities, and from the operation of heavy trucks and related equipment. Given the low human population densities in the GWA II analysis area, construction and development operations under the Proposed Action and Alternatives A and B would be sufficiently distant from residences that none would likely be affected by construction or development operations. Under the No Action Alternative, Alternative C, no additional noise levels would be added to already existing noise in the analysis area. Overall noise produced by construction and support services equipment during peak activity periods would be moderate because of its dispersed and short-term nature. Implementation of mitigation measures in DEIS Sections 2.3.4.2.15 and 4.15.6 should fully mitigate/reduce noise impacts to acceptable levels.

S.3 SCOPE OF ANALYSIS

The purpose of the scoping process, as stipulated (40 CFR, Parts 1500-1508), is to identify important issues, concerns, and potential impacts that require analysis in the EIS and to eliminate insignificant issues and alternatives from detailed analysis. A Scoping Statement was prepared and submitted to the public by the BLM on 13 December 1993, requesting input into the proposed GWA II natural gas development project. A total of 130 scoping documents were sent out to the public on the BLM mailing list, as well as to organizations, groups, and individuals

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requesting a copy of the scoping document. During preparation of the EIS, the BLM and consultant Interdisciplinary Team (IDT) had communicated with, and received input from various federal, state, county, and local agencies, elected representatives, environmental and citizen groups, industries, and individuals potentially concerned with issues regarding the proposed drilling action as summarized in Chapter 5 of the DEIS.

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GREATER WAMSUTTER AREA II FINAL EIS

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XXI

SECTION 1

ERRATA:
MODIFICATIONS, CORRECTIONS, AND
ADDITIONS TO THE
GREATER WAMSUTTER AREA II
DRAFT
ENVIRONMENTAL IMPACT STATEMENT

XXII

PREFACE

The Draft Environmental Impact Statement (DEIS) analyzes the impacts of drilling and production operations in the Greater Wamsutter Area II (GWA II) natural gas-producing area of southern Wyoming. The GWA II analysis area is located in southeastern Sweetwater County and southwestern Carbon County, Wyoming, within Townships 16 through 22 North (T16-22N), Ranges 92 through 95 West (R92-95W), 6th Principal Meridian. The analysis area encompasses 334,191 acres of mixed federal, state, and private lands. Of this total, approximately 146,912 acres are federal, 19,240 acres are State of Wyoming lands, and 168,039 are private lands.

The DEIS addressed in detail a maximum development scenario proposed by the GWA II operators (Proposed Action) and three other alternatives as described in greater detail in the following section and briefly summarized here. The Proposed Action would increase drilling production in the GWA II analysis area by allowing the Operators to develop 750 wells and 300 well locations within the analysis area in addition to existing operations. The Proposed Action has been identified as the BLM Preferred Action. The other three alternatives analyzed in this DEIS are 1) Alternative A, which would allow the Operators to develop 300 wells and 250 well locations within the analysis area in addition to existing operations; 2) Alternative B, which would allow the Operators to develop 225 wells and 200 locations within the analysis area in addition to existing operations; and 3) Alternative C, the No Action alternative, which would disallow any further gas/oil development beyond that currently authorized.

This Final EIS (FEIS) document is not a complete reprinting of the Draft Environmental Impact Statement (DEIS) for the Greater Wamsutter Area II natural gas development project. It incorporates by reference the material presented therein and identifies changes in the DEIS required as a result of public and agency comment on the DEIS and further Bureau of Land Management (BLM) Interdisciplinary Team (IDT) environmental studies and analyses.

This FEIS is divided into two sections:

Section 1: ERRATA: Modifications, Corrections, and Additions to the Greater Wamsutter Area II Gas Development Draft Environmental Impact Statement; and

Section 2: Comments and Responses on the Draft Environmental Impact Statement

The DEIS is required to accompany this document because only the modifications, corrections, and additions are provided herein. For ease of reference, inserts, deletions, and modifications to the DEIS are presented herein under the section numbers and headings, page number, column, paragraph, and line. The Wildlife section of Chapter 4, Analysis of Environmental Consequences, is presented in its entirety, since numerous changes have been made to this section. A new section, Cumulative Impacts Analysis, has also been included in Section 1, and follows the DEIS errata.

**ERRATA:
MODIFICATIONS, CORRECTIONS, AND ADDITIONS
TO THE
GREATER WAMSUTTER AREA II GAS DEVELOPMENT
DRAFT ENVIRONMENTAL IMPACT STATEMENT**

CHAPTER 1

PURPOSE AND NEED

1.4 ENVIRONMENTAL ANALYSIS PROCESS

Page 1-11, last paragraph. Insert a new sentence that reads: "The Record of Decision will be signed by the BLM Wyoming State Director."

CHAPTER 2

PROPOSED ACTION AND ALTERNATIVES

2.3 PLAN OF OPERATIONS

2.3.2.3 Access Road Construction

Page 2-11. Paragraph 1, end of paragraph. Add the following sentence, "The BLM district engineer will assist the operator in determining the survey and design requirements so as to minimize cost while ensuring that the road is safe for the user and meets Bureau standards."

Exhibits 2-11, 2-12, and 2-13

Pages 2-25, 2-26, 2-27. The wellbore diagrams in Exhibits 2-11, 2-12, and 2-13 should show the top of the cement (TOC) of the production casing a minimum of 100 feet above the Lance Formation, not the Lewis Formation as shown.

2.3.3.2 Completion and Testing Operations

Page 2-29. Paragraph 3, line 5. After "... for use in the GWA II analysis area." add "All new open produced water pits will be netted or covered at the time of construction so as not to be accessible to migratory birds."

2.3.4.2.3 Soils

Page 2-35. "Measure 4: Limit construction activities to periods when the soils are dry or not frozen." Change to: "Construction activity will not be conducted using frozen or saturated soil material or during periods when watershed damage is likely to occur."

2.3.4.2.4 Water Resources

Page 2-38. Measure 10, end of paragraph. Add "An approved plugging plan will be implemented when the oil and/or gas well is abandoned."

2.3.4.2.5 Vegetation and Wetlands

Page 2-41. Measure 5, line 4. Delete word "minor" and change to "necessary."

2.3.4.2.7 Wildlife

Page 2-43. Measure 12. Replace "Relocate drilling sites to avoid white-tailed prairie dog colonies." to "Relocate drilling sites to avoid white-tailed prairie dog colonies when these colonies are greater than 200 acres in size and active towns are located within the colony."

2.3.4.2.14 Health and Safety**Hazardous Materials.**

Page 2-46, line 6. Change "field office" to "workplace."

CHAPTER 3**AFFECTED ENVIRONMENT****3.1 GEOLOGY/PALEONTOLOGY****3.1.1.1 Regional Geologic Overview****Tertiary Deposits**

Page 3-2. Last line "...lake systems (Lake Luman and Lake Gosiute), that experienced many cycles of expansion and" just stops. Last paragraph, beginning with line 10, the rest of the paragraph should read as follows: "Sediments of the Green River Formation, which overlie the Wasatch, record the history of large lake systems (Lake Luman and Lake Gosiute), that experienced many cycles of expansion and contraction. The Green River Formation has been

subdivided into several tongues or members that are characterized either by their distinctive lithology and fossils that reflect changing water salinities in the ancient lakes, or by their intertonguing relationship with the Wasatch Formation."

3.1.2.1 Applicable Laws, Regulations and Policies

Page 3-11. Line 2. The correct name is the Federal Land Policy and Management Act of 1976.

3.6 RANGE RESOURCES AND OTHER LAND USES**3.6.1 Range Resources**

Page 3-48. Paragraph 2, lines 2 and 3. Change the term "feral horses" to "wild horses." The sentences should read "Wild horses are found within the GWA II, most of which are south of the Interstate Highway. Some of the wild horses north of the Interstate are scheduled to be removed during 1994..."

3.7 WILDLIFE**3.7.1 Introduction**

Page 3-48. Last paragraph, line 6. Change sentence to read, "Specifically, information on the distribution and location of sage grouse leks, raptor nests, and prairie dog colonies were obtained through this agency."

Page 3-49. Paragraph 2, line 5. Insert "Appendix F" in citation to read "FWS (USDI-FWS 1994; Appendix F)."

Page 3-49. Paragraph 2, last line. Change citation from "(HWA 1994a)" to "(HWA 1994)."

3.7.2 Wildlife Habitats

Page 3-49. Paragraph 5, first line. Add the word "type" after "desert scrub" to read, "The sagebrush mixed desert shrub type is dominated by numerous sagebrush species..."

3.7.3 Threatened and Endangered Wildlife Species

Page 3-50. Paragraph 2, line 3. Change citation to read "(USDI-FWS 1994; Appendix F)."

Page 3-50. Paragraph 3, line 1. Change citation to read "*Biological Assessment of Threatened, Endangered, and Candidate Fish and Wildlife Species for the Greater Wamsutter Area II*, prepared by Hayden-Wing Associates (1995)."

3.7.3.1 Black-footed Ferret

Page 3-50. Paragraph 5, line 3. Change citation to read "(HWA 1992, 1994)."

Page 3-50. Paragraph 6, line 6. Delete "and several unidentified scats were found and analyzed." Sentence should read "Although apparently suitable habitat for ferrets exists on the analysis area, no conclusive evidence of ferret presence was found."

Page 3-51. Paragraph 2, lines 1 through 3. Citations should read "(HWA 1994), and the *Biological Assessment of Threatened, Endangered, and Candidate Fish and Wildlife Species for the Greater Wamsutter Area II* (HWA 1995)."

Page 3-53. Paragraph 3, line 2. Change "Arkansas NWR" to "Aransas NWR."

3.7.4 Candidate Wildlife Species

Page 3-54. Paragraph 5, line 2. Change citation from "(USDI-FWS 1994; Appendix A)" to "(USDI-FWS 1994; Appendix F)."

Page 3-54. Paragraph 5, line 2, before last sentence begins. Add the following sentence: "In addition, the burrowing owl, which is present on the project area and has only recently (November 1994) been listed as a candidate species by the FWS will be addressed."

Page 3-54. Paragraph 5, line 2. Change sentence from "The seven candidate..." to read "The eight candidate..."

Page 3-54. Table 3-18. Add the following:

Species	Scientific Name	Status
Burrowing owl	<i>Athene cunicularia</i>	2

Page 3-55. Paragraph 1, line 1. Citation should read "*Biological Assessment of Threatened, Endangered, and Candidate Fish and Wildlife Species for the Greater Wamsutter Area II*, prepared by Hayden-Wing Associates (1995)."

Page 3-56. Numbering is off in rest of Wildlife Section. Change third level heading from 3.7.3.4 to 3.7.4.4.

3.7.4.2 Ferruginous Hawk

Page 3-55. Paragraph 2, line 6. Change "within 1/2 mile" to "within 1.0 mile."

3.7.4.5 Long-Billed Curlew

Page 3-56. Paragraph 6, line 3. Add sentence at end of paragraph: "Therefore, their presence within and immediately proximal to the GWA II analysis area is unlikely."

Page 3-57. Add new section 3.7.3.8 Burrowing Owl after 3.7.3.7 Loggerhead Shrike.

"3.7.4.8 Burrowing Owl

Formerly listed as only a species of high federal interest and a species of special interest in Wyoming, the burrowing owl has only recently received federal status as a C2 candidate species. The burrowing owl is associated with open habitat that has short vegetation and contains an abundance of burrows (Thomsen 1971, Wedgwood 1978). In Wyoming, prairie dog and ground squirrel burrows are the most important sources of burrowing owl nest sights. Moderately large expanses of prairie dog colonies are present on the GWA II and the potential for large amounts of nesting habitat for burrowing owls appears to exist. Despite the presence of apparently suitable habitat for burrowing owls within the GWA II, only two sightings of burrowing owls have been reported for the analysis area in the WOS and only two burrowing owls were observed by HWA biologists during 1994 field mapping of prairie dog towns."

3.7.5 Big Game

Page 3-57. Paragraph 1, line 2. Delete "Approximately 18,506 acres of crucial winter range for pronghorn occurs within the GWA II analysis area. The amount of crucial winter range available is generally considered to be the single most important factor limiting the carrying capacity of the range for the big game species in northern climates." Insert "These animals are managed by the WGFD in major herd units. The amount of crucial winter range available is generally considered to be the single most important factor limiting the carrying capacity of the range for big game species in northern climates. Crucial winter range is defined as winter range which has been documented as the determining factor in a population's ability to maintain itself at a desired level over the long term (Wildlife Society 1990)."

Page 3-59. Paragraph 3, line 5. Change "is not classified as mule deer habitat at all ('out' range designations)" to "is not considered seasonal mule deer habitat."

Page 3-59. Paragraph 4, line 2. Change the word "for" 1993 to "in" 1993.

Page 3-59. Paragraph 5, line 1. Change the sentence to read "The Baggs herd unit, located south of I-80 to the Colorado border, is considered important to sportsmen due to the high hunter success rate there."

Page 3-61. Paragraph ., line 3. Add the words occurring "north and" west of Wamsutter.

Page 3-61. Paragraph 3, line 2. Add citation at end of first sentence, "(WGFD 1993a)."

3.7.6 Sage Grouse

Page 3-61. Paragraph 1, line 2. Change "Historical" to "Documented."

Page 3-61. Paragraphs 2 and 3, replace both entire paragraphs. Replace with:

"The GWA II analysis area was flown by HWA biologists during two survey periods, one in April 1992 (USDI-BLM 1992a) and the other in late March and early April 1994 (HWA 1994) to search for new leks and check existing known leks. Aerial surveys were conducted to the extent possible, according to specifications outlined in the *Handbook of Biological Techniques* (WGFD 1982). Based on BLM and WGFD documented lek locations and HWA survey results, a total of 22 sage grouse leks were identified on the project area. This includes 20 previously documented leks and two new leks discovered by HWA personnel; one in 1992, located in Section 13;T19N, R93W and the other in 1994 located in Section 2;T21N, R93W. It should be noted, however, that 1992 surveys were likely initiated too late in the breeding season to adequately assess the activity status of all leks, since the primary breeding activity was earlier that year because of a mild, dry spring."

"Each new and previously documented lek was checked three times from either the ground or the air. Each of these observations were made within a two-hour period that began at first light in the morning. Numbers of male and female sage grouse in attendance were recorded during each visit. Legal descriptions of lek locations were either verified or determined and placed on 1:24,000 topographic maps. The 22 lek locations are illustrated in Exhibit 3-8. Grouse attendance, along with dates of observations, of the respective leks is documented in the GWA EA (USDI-BLM 1992) and the wildlife technical report for the Greater Wamsutter Area II (HWA 1994). Nine of the 22 leks had no birds present during any of the ground or aerial visits and may no longer be active or be temporarily inactive due to protracted drought conditions. The other 13 leks had from 2 to 22 males in attendance (USDI-BLM 1992, HWA 1994, WGFD 1994). The most notable of these was located in Section 22;T20N, R92W on which 22 males and 16 females were observed in March, 1993 (WGFD 1994)."

Page 3-63. Replace Exhibit 3-8, "Sage Grouse Lek Locations" with new exhibit on page 1-8 of the FEIS.

3.7.7 Raptors

Page 3-64. Paragraph 3, line 6. Delete "by ferruginous hawks."

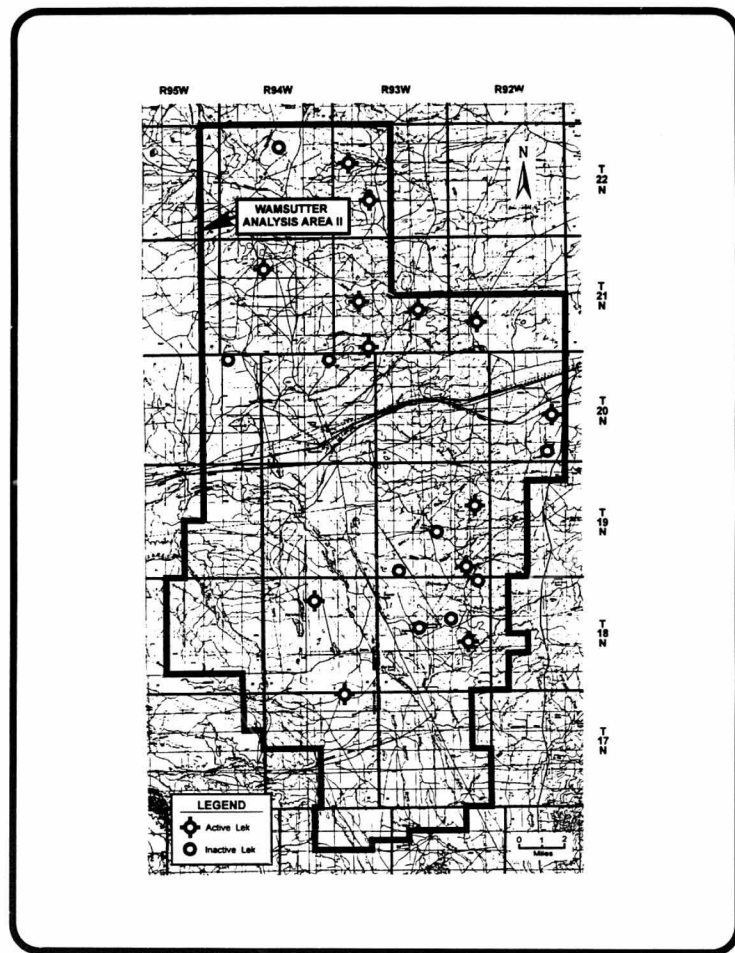


Exhibit 3-8. Sage Grouse Lek Locations.

3.7.8 Other Species

Page 3-64. Paragraph 1, line 3. Change "biological assessment report" to "wildlife technical report."

3.9 RECREATION

Page 3-65. Paragraph 2, line 3. Delete "54."

Page 3-66. Paragraph 1, line 3. Delete "and October."

3.10.3 Visuals Analysis

Page 3-68. Exhibit 3-10. Visual Resource Management Direction in the GWA II Analysis Area. All areas designated as Class 4 should be changed to Class 3; all areas designated as Class 3 should be changed to Class 4.

Page 3-69. Paragraph 2, line 2. Change from "feral or 'wild' horse" to "wild horse."

Page 3-69. Paragraph 3, line 3. Change from "...analysis area as Class 3 (55 percent) and Class 4 (45 percent) as shown in Exhibit 3-10." to "...analysis area as Class 3 (45 percent) and Class 4 (55 percent) as shown in Exhibit 3-10."

3.11.2 The Cultural Chronology of the GWA II Analysis Area

Page 3-71. Paragraph 1, last line. Change "Table 3-19" to "Table 3-20."

Page 3-72. Paragraph 1, last line. Change "Table 3-19" to "Table 3-20."

3.11.3 Summary of the Cultural Resource Data.

Page 3-72. Paragraph 1, line 3. Change "(Table 3-20)" to "(Table 3-19)."

Page 3-72. Paragraph 1, last line. Change "Table 3-20" to "Table 3-19."

CHAPTER 4**ANALYSIS OF ENVIRONMENTAL CONSEQUENCES****4.6 RANGE RESOURCES AND OTHER LAND USES****4.6.3.3 Alternative B**

Page 4-46. Paragraph 2, line 3. Change "about 0. percent" to "about 0.45 percent."

4.7 WILDLIFE - Entire section to be replaced by the following:**4.7.1 Introduction**

The principle impacts likely to be associated with the proposed field development project include: (1) a direct loss of wildlife habitat, (2) the displacement of some wildlife species, (3) an increase in the potential for collisions between wildlife and motor vehicles, and (4) an increase in the potential for the illegal kill and harassment of wildlife.

4.7.2 Impact Significance Criteria

The following management goals and actions regarding wildlife and wildlife habitat are prescribed in the Great Divide RMP (USDI-BLM 1990a):

- to provide habitat quality adequate to support a natural diversity of wildlife and fisheries, including big game, upland game, waterfowl, non-game species, game fish, sensitive, threatened, and endangered species, species of special management (concern) in Wyoming, and featured species of federal interest.
- To comply with mandates of the Endangered Species Act so as to assist in recovery of threatened or endangered species and species of special management in Wyoming, as well as to assist in meeting goals of recovery plans.
- To maintain or improve vegetation condition and/or to avoid long-term disturbance in high priority standard habitat sites and fisheries areas.
- To maintain or improve overall ecological quality, thus providing good wildlife habitat within the constraints of multiple-use management in moderate and low priority standard habitat sites.
- Crucial winter ranges for big game species would be protected by the application of the Wyoming BLM standard mitigation guidelines for surface-disturbing activities. In addition, surface disturbance would be mitigated to restore and/or replace lost habitat.

In areas where crucial winter ranges for more than one species of big game overlap, the BLM would employ spatial and temporal management of development, facilities, and users to avoid activity during certain times of the year and in certain areas. The BLM would cooperate with owners of adjacent property to manage these overlapping winter ranges and would consult with the WGFD concerning proposals involving surface disturbance in these areas.

Other factors considered in the assessment of potential effects of proposed actions on wildlife include:

- Whether or not the action(s) would result in non-compliance with existing BLM, FWS, or WGFD management objectives for wildlife, or BLM wildlife stipulations for surface occupancy criteria on natural gas mineral developments.
- A collective increase in direct mortality of wildlife due to: road kill, poaching, harassment, or other causes.
- The displacement of animals from crucial habitat during an important use period.
- The permanent reduction in size, the elimination, or otherwise rendering unsuitable for wildlife of an officially designated crucial habitat.
- Any effect, whether direct or indirect, that results in long-term decreases in recruitment and/or survival of individuals in a wildlife population.
- Disruption of grouse or raptor breeding or nesting activities.

Impacts to species of special concern including listed threatened and endangered species, species proposed for listing, FWS or state sensitive species and federal candidate species would be considered significant if any of the following were to occur:

- If the Biological Assessment, according to Section 7 of the Endangered Species Act (ESA) of 1973, concludes a "May Affect" determination BLM will initiate formal consultation with FWS.
- The loss (death) of any individual from direct or indirect project-related causes including, but not limited to, recruitment rate reductions to viable populations.
- Project-related impacts that jeopardized or substantially decelerated the recovery program for any species of concern.

4.7.3 Direct and Indirect Impacts

4.7.3.1 Proposed Action

This alternative would provide a maximum development scenario of 750 production wells and related facilities at 300 locations through the next ten-year planning period. Well spacing on existing production areas is predominantly two wells per section which complies with existing WOGCC approved spacing for the GWA II analysis area. Under the proposed action the precise number of wells and their specific locations, however, would be directed by the success of developmental drilling and production technology, and economic considerations such as the cost of development of leases with marginal profitability. Since specific well site locations have not been designated, it is assumed for purposes of analysis in this EIS, that there is a uniform distribution of new well sites over the entire project area (excluding areas with existing well densities of 2 or more per section) rather than specific designated well site locations. Thus, the analysis of impacts to wildlife for this alternative is based on an average density of 0.63 new well pads per section with an associated disturbance of 8.03 acres per well site, which includes 5.0 acres for the pad and 3.03 acres for associated roads and pipelines.

Development at this level would disturb approximately 2,416 acres of wildlife habitat over the next ten-year planning period. This includes a total of 1,500 acres associated with well pad construction, 909 acres for related access roads and pipeline construction, and 7 acres for the construction of the compressor station. Beginning the first fall after wells start producing, the reclamation of disturbed habitats would commence and re-establish vegetation along the pipeline and road ROWs. Re-vegetation would continue with the subsequent reclamation of abandoned well sites that are no longer productive. This reclamation of well, road and pipeline construction activity would reduce the area disturbed by the Proposed Action to 1,086 acres. Grasses and forbs are expected to become established within the first several years following reclamation, however an estimated eight to 15 years would be required for shrub establishment. Consequently, the removal of shrub habitat within the project area would represent a long-term loss to those species that depend on such vegetation for forage or shelter.

General Wildlife

The physical removal of 2,416 acres of wildlife habitat associated with the construction of drill sites and access roads will reduce habitat availability for a variety of common small mammals, birds, reptiles, amphibians, and their predators. Because of the small amount of habitat lost in relation to the large amount of comparable habitats on the analysis area and in the region, no adverse effects to the populations of these species is expected. The duration of this impact may be short-term or long-term depending on the production status of the wells.

4.7.3.1.1 Threatened and Endangered Wildlife Species

Black-footed Ferret. If black-footed ferrets inhabit the GWA II analysis area, the potential for the Proposed Action to significantly impact this species exists. Because of the large numbers of prairie dogs found on the area and the relatively large number and consistent history of ferret sightings reported for this area (HWA 1995), the possibility of ferrets inhabiting this area cannot be discounted. Collectively, nearly 2 percent of the GWA II analysis area is covered by white-tailed prairie dog colonies. Nearly all of the 106 colonies found on GWA II analysis area occur south of I-80 with the main concentration located in the southern third of the area (Exhibit 3-4). During the past 20 years, five confirmed sightings and seven probable sightings have been reported within a 30-mile radius of the GWA II analysis area.

Potential impacts to this species that are associated with project activities include 1) direct loss of habitat including prairie dog towns and burrows, resulting in a direct loss in prey base, 2) increased possibility for being struck by moving vehicles on existing and new roads, 3) increased possibility for being mistakenly shot as a prairie dog, and 4) possibility of being buried or otherwise injured if construction activities overlap active prairie dog burrows.

Under this alternative, an estimated 39 acres of potential black-footed ferret habitat would be disturbed over the short-term in the next ten-year planning period by the construction of wells and associated facilities. This constitutes approximately 0.7 percent of the potential ferret habitat within GWA II. However, upon installation of the production facilities and successful reclamation, the overall long-term surface disturbance would be reduced from 39 acres to 29 acres.

In order to avoid impacting this species, consultation with the FWS to determine the necessity of conducting black-footed ferret searches prior to construction is recommended. The size, location, and burrow densities of prairie dog colonies on the GWA II analysis area has been described in detail in a wildlife technical report for the Greater Wamsutter Area II (HWA 1994). If the Proposed Action is coordinated with the BLM and FWS, and the prescribed avoidance and mitigation measures listed in Section 2.3.4.2.6 and Appendix A are applied, impacts to this species are unlikely to occur.

Bald Eagle. Bald eagles that pass through the region may be attracted to road-killed wildlife, particularly during the winter months, and therefore would be more vulnerable to injury or death from vehicle traffic. The death of one bald eagle would constitute a significant impact. Due to the absence of open water, roosting trees, and a suitable prey base, bald eagles are not expected to frequent the area. Although several winter sightings of bald eagles have been made on and within a few miles of the boundaries of the GWA II analysis area, their use of the area is likely to be limited to occasional hunting flights in search of winter food. Although a small potential exists for vehicles colliding with bald eagles feeding on road-killed carrion during the winter months, the construction and operation of the project are not likely to adversely affect this species.

Peregrine Falcon. Although the GWA II analysis area appears to provide suitable habitat, the peregrine falcon is unlikely to occur on the project area or in the region except as an occasional migrant. There is no evidence that indicates the GWA II analysis area is used by the peregrine falcon and, therefore, implementation of the Proposed Action is not expected to adversely affect this species.

Whooping Crane. Wetlands are extremely limited within the GWA II analysis area and since there is no evidence indicating the GWA II analysis area is used by the whooping crane, implementation of the Proposed Action is not expected to adversely affect this species.

4.7.3.1.2 Candidate Wildlife Species

White-Faced Ibis. Waterfowl and shorebird nesting habitat is limited within the GWA II analysis area because of the ephemeral nature of the water supply. Although the white-faced ibis has been observed on and near the GWA II analysis area on occasion, including sightings on two different locations during the 1994 field surveys (HWA 1994), it is likely that the use of the area by this species is only for resting and feeding during migration. Because the habitats that are normally used by white-faced ibis for nesting (extensive waterbodies with dense stands of cattails or reeds) (Dinsmore 1983) are nearly non-existent on GWA II analysis area, it is not likely that this species nests here. However, because two birds that appeared to be pair-bonding were observed on Red Lake on May 6, 1994, the possibility of nesting cannot be ruled out.

Wetland areas which serve as suitable habitat for white-faced ibis comprise less than 1.5 percent of the GWA II analysis area. Well sites would be located to avoid wetlands, however, roads and pipeline facilities might affect a small amount (< 5 acres) of wetlands where such facilities cannot be located elsewhere. Although the probability of directly impacting potential ibis nesting habitat is low, the potential exists for impacting ibis by way of disturbance associated with facilities that may occur nearby. These impacts could be prevented by avoiding construction within a suitable distance from potential ibis nesting habitat from late April through mid-July. If construction is planned within this time period, a search for nesting ibis at the APD level would determine whether or not ibis were present. If nesting ibis were discovered, the FWS would be contacted and a consultation on required action requested. Given the application of these measures, adverse impacts to this species are unlikely.

Ferruginous Hawk. The ferruginous hawk is a common inhabitant of GWA II analysis area and nests throughout the area. Although 51 nests of this species have been found during the 1994 BLM survey and the 1992 HWA survey, only eight active nests were located. The majority of these nests occur along the Delaney Rim in the southwestern portion of the GWA II analysis area and in rock outcrops and prominences throughout the area.

The primary possible impact to ferruginous hawks from project activities is disturbance during nesting that may result in reproductive failure. This would be mitigated by prohibiting project activities within a ¼- to 1-mile radius of active ferruginous hawk nest sites from March 1 through

July 31. On the basis of current use, natural topographic barriers, and the judgement of the BLM AO, the size of the buffer zone may vary. From 126 to 2,010 acres per occupied nest could be subject to seasonal restrictions with total acreage varying with the number of active nests. For this reason, an activity status survey of raptor nests should be conducted immediately prior to construction to allow for well placement planning and the avoidance of impacts to actively nesting birds. With the implementation of seasonal restrictions adverse impacts to ferruginous hawks under this alternative are unlikely.

Columbian Sharp-Tailed Grouse. No impacts to the Columbian sharp-tailed grouse are anticipated due to the lack of suitable habitat for this species within the GWA II analysis area.

Mountain Plover. Mountain plovers were sighted during the 1994 field surveys (HWA 1994) and large amounts of apparently suitable habitat for this species occurs in the southern third of the area. Even though sightings of this species in the area are not numerous, it is possible that relatively large numbers of them occur there.

Under this alternative, an estimated 39 acres of potential mountain plover habitat would be disturbed over the next ten-year planning period by the construction of new wells and associated facilities under this alternative. This constitutes approximately 0.7 percent of the potential nesting habitat for mountain plovers within GWA II. Nesting locations of this species are difficult to determine because the birds nest independently and can be sporadically spaced (Ritter 1992). Because the status of nests changes between years, activity status and location must be current to allow the planning of mitigation and the avoidance of impacts.

A significant impact to the mountain plover would occur if an active nest were disturbed during the incubation period or if the nest was disturbed before the chicks were mobile. This impact would be prevented by avoiding construction within suitable mountain plover nesting habitat from late April through mid-July. If construction is planned within this time period, a search of the construction site would determine the occurrence of mountain plover. The FWS would be contacted and a consultation on required action requested regarding construction activities that are scheduled between March 15 and August 15. Given the application of these measures, adverse impacts to this species are unlikely.

Long-Billed Curlew. No impacts to the long-billed curlew are anticipated due to the lack of suitable habitat for this species within the GWA II analysis area.

Black Tern. No impacts to the black tern are anticipated due to the lack of suitable habitat for this species within the GWA II analysis area.

Loggerhead Shrike. Loggerhead shrikes, including breeding pairs, were sighted during the 1994 field surveys (HWA 1994) and suitable nesting habitat for this species occurs within and proximal to major drainage channels within the GWA II analysis area. Therefore, for purposes

of analysis in this EIS, it was assumed that these areas were the limiting factor in the determination of the distribution and abundance of loggerhead shrikes within the project area.

Potential nesting habitat for loggerhead shrikes along major drainages within the GWA II comprises an area totalling approximately 4,000 acres in size. Under this alternative, an estimated 32 acres of potential loggerhead shrike nesting habitat would be disturbed over the next ten-year planning period by the construction of new wells and associated facilities. This represents approximately 0.8 percent of the potential nesting habitat available to loggerhead shrikes within the project area.

A significant impact to the loggerhead shrike would occur if an active nest were disturbed during the incubation period or if the nest was disturbed before the chicks were mobile. This impact could be prevented by avoiding construction within suitable loggerhead shrike nesting habitat from late April through mid-July and/or avoiding well placement within areas of known loggerhead shrike habitat. If construction is planned within this time period, a search of the construction site would determine whether or not suitable habitat existed and, if present, whether or not shrikes were present. If nesting loggerhead shrikes were discovered, the FWS would be contacted and a consultation on required action would be requested. Given the application of these measures, adverse impacts to this species are unlikely.

Burrowing Owl. Scattered sightings of burrowing owls on prairie dog colonies on the GWA II analysis area have been reported in the WOS (1992a) and by HWA (1992 and 1994). Any habitat alterations that affect openness, vegetation height, prairie dog densities, and burrow availability have the potential to influence burrowing owl populations. Of these four components, short vegetation height and burrow availability are the most critical for maintaining owl populations (Marks and Ball 1983). Possible impacts to burrowing owls could be minimized by avoiding the construction activities within prairie dog colonies during the owl nesting season (late April-late June). If it is not feasible to avoid construction during the nesting season, a ground search for owls should be conducted prior to commencement of activities. If no owl nests are found and the area had been cleared for black-footed ferrets, the BLM AO could authorize construction activities. If owl nests are found the FWS should be contacted and consultation requested.

Under this alternative, a maximum of 39 acres of potential burrowing owl nesting habitat (i.e., prairie dog colonies) could be disturbed over the next ten-year planning period by the construction of new wells and associated facilities. This amounts to approximately 0.7 percent of the total habitat available to burrowing owls within the project area.

The placement of facilities in prairie dog colonies may displace some burrowing owls into surrounding areas. Because these areas contain over 6,000 acres of prairie dog colonies which constitute prime nesting habitat of this species, such displacements are not expected to produce adverse or irretrievable impacts. In addition, Measure 7 in Section 2.3.4.2.6 states that construction during the critical nesting season will be restricted when an active raptor nest occurs

within ¼-mile of a proposed well location. Given the application of these restrictions, adverse impacts to burrowing owls are not expected.

4.7.3.1.3 Big Game

Impacts to all big game species include the loss of habitat due to well, road and pipeline development; displacement due to increased human activities; increased potential for vehicular collisions due to new roads and increased traffic levels on existing roads; and increased poaching due to easier access and increased human activities. The amount of habitat loss depends on the seasonal use of the area by each species and the corresponding drilling schedule. Also, displacement due to human disturbance is more pronounced in the short term and the magnitude depends on the ability of a species to habituate to disturbance. Habitat summaries and disturbance responses for each big game species are presented below.

Pronghorn Antelope. The Proposed Action involves the placement of up to 750 wells at 300 new well locations, some of which could be drilled within crucial pronghorn antelope winter range (Exhibit 3-5). The amount of crucial winter habitat removed would depend on the number of new well locations constructed, with a loss of approximately 8.03 acres per drilling site and associated access roads and pipelines. Assuming uniform spacing of proposed well sites, an estimated 17 new well locations would be constructed within crucial winter range for pronghorn antelope. The construction of 17 new well locations in this habitat would initially result in the direct removal of approximately 139 acres of habitat on this crucial range, or 0.74 percent of the crucial winter range which covers approximately 18,506 acres, and reduce the carrying capacity for pronghorn antelope within the Red Desert and Bitter Creek herd units by approximately 9 animals. An additional 220 well locations would be constructed within winter/yearlong habitat resulting in the disturbance of 1,767 acres, and the remaining 63 well locations would be constructed in spring/summer/fall pronghorn antelope habitat which would reduce the acreage of this habitat by approximately 506 acres. In the long term, following reclamation and assuming production on all well sites, approximately 78 acres of crucial winter range (0.42 percent) and 1,273 acres of winter/year-long and spring/summer/fall range would remain impacted. This amount of habitat loss by itself is not considered to be significant, but must be evaluated in the context of cumulative impacts (Section 4.7.5) in order to assess the magnitude of overall effects.

The re-establishment of crucial winter range will be an on-going process throughout the life of the well field and will, over time, replace lost acreage. All of the loss has been calculated up front, but will in fact take place over the first 10 years of the project. Reclamation will also begin during the first year of the project and will extend at least up through the retirement of the last active well. The reduction in pronghorn carrying capacity initially created by project activities will be continuously diminished over the life of the project as shrub habitats on the area are restored through reclamation efforts.

By the end of the initial developmental activities during the first 10 years of the project, on-going reclamation activities will have reduced the size of the disturbed area by approximately 30

percent and shrub establishment on the initially reclaimed areas would have been achieved. At the end of the 30-year life of the well field, a well-developed mosaic of shrub stands would be present on an estimated 50 percent of the area and would be fully functional as pronghorn winter range. The development of the remaining 50 percent of the area into functional pronghorn winter range is likely to take an additional 8 to 15 years of post reclamation time.

In addition to the direct loss of habitat due to the development of wells and associated transportation facilities, disturbances from drilling activities and traffic would affect utilization of the habitat immediately adjacent to these areas. However, pronghorn have been found to habituate to increased traffic volumes (Reeve 1984) and heavy machinery as long as the machines move in a predictable manner, whereas deviation from the ordinary caused pronghorn antelope displacement (Segerstrom 1982).

By the time the field is under full production, construction activities have ceased and traffic and human activities in general are greatly reduced, this impact would be minimal and the level of pronghorn use of the area is likely to be determined mostly by the quality and quantity of forage available. Only long-term monitoring could determine the actual magnitude and duration of displacement and avoidance impacts.

The potential for vehicle collisions with pronghorn would increase as a result of increased vehicular traffic associated with the presence of construction crews and would continue (although at a reduced rate) throughout all phases of the well operations. Therefore, the potential for an increase in the incidence of pronghorn-vehicle encounters exists and mitigative measures to avoid and/or reduce such incidents should be taken.

The short-term influx of temporary construction workers and the long-term increase in the use of the area by gas field employees would increase the potential for poaching and general harassment of pronghorn antelope. Such activities would not reach significant proportions, with implementation of prescribed mitigation measures.

With the application of avoidance and mitigation measures described above and in Section 2.3.4.2.7 and Appendix A, the proposed action is not expected to significantly impact crucial winter range of pronghorn.

Mule Deer. No officially-designated crucial mule deer habitats occur on the GWA II analysis area, and most of the northern portion of the area (118,016 acres) is not classified as mule deer habitat (Exhibit 3-6). An estimated 190 of the 300 proposed well locations would be drilled within winter/yearlong range of mule deer and together with associated roads and pipelines would initially disturb approximately 1,526 acres of this habitat. Another 15 well locations would be located within yearlong habitat for mule deer and would temporarily remove approximately 120 acres of yearlong mule deer range. The remaining 95 proposed well locations would not be in designated mule deer range. After construction and initial reclamation, assuming that all wells are productive, a maximum of approximately 882 acres of winter/yearlong and yearlong mule

deer habitat would be impacted in the long term. Since no crucial habitat will be affected by this project, no significant impact to mule deer populations is expected.

An additional loss of habitat could occur when mule deer are displaced from the habitat immediately surrounding the project sites. This impact would occur in the short term during the construction phase of the project. Over time, levels of human activity would decrease as wells are shut down or put into production and animals would have had time to habituate over the long term. Mule deer wintering along I-80 in southern Wyoming showed little concern for traffic (Ward et al. 1980). In Montana, a 10-year study of the effects of surface coal mining on mule deer showed that despite extensive increases in mining disturbance and activity over a 680-square-mile area, the mule deer population increased over 600 percent in an 8-year period (Phillips et al. 1986). An extreme case of tolerance to humans was documented by Crockett and Green (1986) who describe the management problems created by a mule deer population that colonized the western edge of the city of Boulder, Colorado and use it as year-round habitat.

Elk. No officially-designated crucial elk habitats occur on the GWA II analysis area, and most of the area is not classified as elk habitat (Exhibit 3-7). Approximately 28,224 acres of elk year-long range occur in the northeastern corner of the GWA II analysis area. Assuming uniform spacing of proposed well locations, an estimated 28 well sites would be constructed within elk yearlong range. Total well and road construction would initially result in the direct removal of approximately 225 acres of habitat. Long-term impacts after initial reclamation, assuming all wells are productive, would be reduced to 126 acres. The remaining 277 well locations and associated roads would not be within designated elk range. Because the Proposed Action will affect relatively little elk habitat and no crucial elk range, significant impacts to this species due to habitat loss are not expected.

In addition to the direct loss of habitat due to construction of well pads and roads, disturbances from drilling activities and traffic would affect utilization of the habitat immediately adjacent to these areas. Because elk have been found to habituate to disturbances that are repetitive and predictable (Johnson 1982), and because of the decrease in human activity in the area following well construction, this impact would only occur for the short-term and is not expected to be significant.

4.7.3.1.4 Sage Grouse

Twenty-two sage grouse leks have been documented on the GWA II analysis area and 13 were found to be active during 1992 and 1994 breeding seasons (Exhibit 3-8). The Proposed Action could displace nesting birds if construction is performed within a 2-mile radius of an active lek during the spring or early summer (March to June). If construction occurs within 1/4-mile of an active lek during the strutting season (March and April), it would also disrupt breeding activities.

Assuming uniform distribution of proposed new wells over the project area, an estimated 81 well sites would fall within sage grouse breeding and nesting habitat (area within the 2-mile radius

surrounding the 13 known active lek sites on the project area) and, assuming that the total area within each 2-mile lek radius is suitable nesting habitat, would initially disturb a maximum of 650 acres of habitat. Occupancy is restricted within a 1/4-mile radius from each lek from March 15 through May 31 to protect breeding habitat. This excludes 1,638 acres from occupancy for two and one half months out of the year. An additional 1 1/4-mile radius from each lek is protected from construction activities from March through mid-June to protect nesting habitat on a total of 95,785 acres. On the basis of current sage grouse use, time of season, presence/location of sagebrush cover, and topographic barriers, exceptions may be granted to these stipulations by the BLM AO on a case-by-case basis.

Collectively, those well locations that fall within the 2-mile radius of leks could result in a significant loss of nesting habitat. Such losses of nesting habitat could be minimized by the selective placement of well locations outside of such 2-mile radii, or placement of wells in non-sagebrush barren areas within the 2-mile radius, and by using sagebrush in the species mix when reclaiming these areas. The disturbance of 650 acres of habitat under this alternative would displace some grouse into adjacent areas of similar habitat and would reduce the carrying capacity of the area to support grouse for the life of the project, or until reclamation efforts have replaced the sagebrush habitats that were removed during construction. The application of BLM seasonal occupancy restrictions would result in the avoidance of impacts to breeding and nesting activities, and the implementation of a reclamation/habitat restoration plan would, over time, mitigate the long-term loss of sage grouse habitats.

Due to the direct depredation of sage grouse by raptors, artificial nesting structures constructed for raptors should be located outside the 2-mile nesting radius of known leks.

Although the potential to impact sage grouse exists, adverse effects can be minimized with the application of prescribed avoidance and mitigation measures listed above and in Section 2.3.4.2.7, and Appendix A.

4.7.3.1.5 Raptors

Sixty-five raptor nests have been documented on and within 1 mile of the GWA II analysis area, and eight (ferruginous hawks) were found to be active during the 1992 survey by HWA and the 1994 survey by BLM. The condition of the majority of the historical nests indicated they had not been used in a number of years and, in some cases, were little more than a few scattered sticks on a ledge. Several nests are no longer identifiable as raptor nests.

A total of 300 well locations will be constructed under the Proposed Action. The primary potential impacts to raptors from project activities include: (1) disturbance to an active nest during its period of use that might result in nest abandonment for the season and reproductive failure, and (2) the establishment of long-term well locations so close to raptor nest sites (during the season of non-use by raptors) that future use of such sites by raptors is precluded. The first type of potential impact would be mitigated by prohibiting project activities within 1/4- to 1-mile

from active raptor nest sites from February 1 through July 31 (See Measure 7 in Section 2.3.4.2.7). The buffer radius and exclusion dates applicable would vary, depending upon activity status of nests, species involved, natural topographic barriers, and line-of-sight distances. Depending on the radius applied to a minimum of 8 active nests, from 126 to 2,010 acres per occupied nest may be subject to seasonal restrictions for three to six months. Exceptions and modifications to these stipulations may be granted with approval from the BLM AO on a case-by-case basis. In order to resolve the second type of potential impact, the FWS should be consulted to determine the requirement for developing a Raptor Management Plan in coordination with the WGFD, BLM, and producers.

With the development of an appropriate Raptor Management Plan, including the application of avoidance and mitigation measures presented in Section 2.3.4.2.7 and Appendix A, significant impacts to raptors are not expected.

4.7.3.1.6 Vehicle Collisions

An increase in potential for vehicular collisions with wildlife would occur as a result of new road construction and from increasing traffic levels on existing roads. The potential for this impact increases during winter months, during nocturnal and twilight periods, with vehicle speed, and with driver ignorance or disregard. On the higher-speed roads there is some potential for carrion-eating raptors (e.g. golden eagles) to be struck by motor vehicles while feeding on road-killed animals.

After the drilling phase is completed, this impact decreases greatly as traffic decreases. During the production phase only occasional well inspections occur rather than the continuous activity associated with the drilling phase.

The terrain associated with the Proposed Action is generally fairly level and contains predominately shrub and grassland habitat. Consequently, drivers can see relatively long distances and are aware of wildlife on the road well before possible collisions occur.

During field reconnaissance of the area no wildlife carcasses were observed adjacent to the extensive existing roads, indicating vehicle collisions are infrequent.

Although the potential for increased vehicular collisions exists, significant adverse effects are unlikely with the application of prescribed avoidance and mitigation measures listed in Section 2.3.4.2.7 and Appendix A.

4.7.3.1.7 Human Harassment

Roads and associated human activity create the potential for harassment of all species of wildlife. Big game species are especially vulnerable to increased harassment in the form of poaching. Due to the existing road network in the area, the potential for harassment already exists and is not

expected to increase significantly due to the increase in roads. However, the temporary increase in work force associated with the drilling program will moderately increase the potential for illegal kill and harassment of wildlife. The potential for this type of impact should return to existing levels following the completion of the drilling and intensive construction phase of the project.

In order to reduce incidents of illegal kill and harassment of wildlife, all project workers should be instructed on local wildlife regulations, state wildlife laws and regulations should be posted in conspicuous places at the job sites, and workers would not be allowed to carry firearms. Personnel should also be instructed about the nature of the wildlife species that occur on the work site, potential impacts to these species, and measures that could be taken to avoid or minimize impacts. Project workers should report raptor nests, sage grouse leks and other noteworthy wildlife occurrences to the WGFD and the BLM.

Although the potential for increased human harassment exists, significant adverse effects are unlikely with the application of prescribed avoidance and mitigation measures listed above and in Section 2.3.4.2.7 and Appendix A.

4.7.3.1.8 Noise

In addition to direct habitat losses and the disturbance potential associated with direct human encounters, noise disturbances to wildlife would occur during the construction phase of the project and would continue through the production and operations phase of the project. Noise levels from ineffective compressor mufflers could affect utilization of habitat immediately adjacent to these areas. This may be especially true for sage grouse, since the WGFD (1995) has suggested that lek abandonment has occurred on the GWA II analysis area on several occasions as a result of poorly muffled compressors on existing wells. Similarly, Amstrup (1977) reported that displaying sharp-tailed grouse responded negatively to strip mine noises by reducing or ceasing breeding activities on the site.

Mitigation of impacts as a result of sustained, excessively loud noise levels could include the implementation of effective mufflers on all compressors.

4.7.3.2 Alternative A

This alternative would provide an intermediate development scenario of 300 production wells and related facilities at 250 locations through the next ten-year planning period. The analysis of impacts to wildlife under this alternative is based on an average density of 0.52 well pads per section with an associated disturbance of 8.03 acres per well site, which includes 5.0 acres for the pad and 3.03 acres for associated roads and pipelines. The types of impacts under this alternative are identical to those described under the Proposed Action; however, the magnitude of potential impacts under Alternative A is somewhat less than the Proposed Action because of the smaller number of well locations, and miles of road and pipeline proposed. Similar to the

Proposed Action, this scenario is based on the assumption of a uniform distribution of well sites over the entire project area (excluding areas with existing well densities of 2 per Section) rather than on specific designated well site locations, since specific well sites have not been designated.

Development at this level would disturb approximately 2,015 acres of wildlife habitat over the next ten-year planning period. This includes a total of 1,250 acres associated with well pad construction, 757 acres for related access roads and pipeline construction, and 7 acres for the construction of the compressor station. Following initial reclamation efforts, disturbed acreage would be reduced to an estimated 905 acres on which on-going project activities remain throughout the 30-year life of production. Vegetation would become re-established along the pipeline and road ROWs beginning the first fall after wells start producing and would continue with the subsequent reclamation of abandoned well sites that are no longer productive.

4.7.3.2.1 Threatened and Endangered Species

Black-footed Ferret. The analysis for Alternative A is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, an estimated 31 acres of potential black-footed ferret habitat would be disturbed by the development of wells and related facilities. The potential for impacting this species, if present, is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed and 8 fewer acres of potential ferret habitat will be disturbed.

Bald Eagle. The analysis for Alternative A is identical to that previously described under the Proposed Action.

Whooping Crane. The analysis for Alternative A is identical to that previously described under the Proposed Action.

4.7.3.2.2 Candidate Wildlife Species

White-Faced Ibis. The analysis for Alternative A is identical to that previously described under the Proposed Action.

Ferruginous Hawk. As with the Proposed Action, the primary potential impact to ferruginous hawks from project activities is disturbance during nesting that might result in reproductive failure. This would be mitigated by implementation of standard seasonal buffer restrictions around active raptor nests; the same as those described for the Proposed Action. Depending on the radius applied, from 126 to 2,010 acres per occupied nest could be subject to seasonal restrictions from three to six months.

Columbian Sharp-Tailed Grouse. The analysis for Alternative A is identical to that previously described under the Proposed Action.

Mountain Plover. The analysis for Alternative A is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, an estimated 31 acres of potential mountain plover nesting habitat would be disturbed by the development of wells and related facilities. The potential for impacting this species is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed and 8 fewer acres of potential plover habitat will be disturbed.

Long-Billed Curlew. The analysis for Alternative A is identical to that previously described under the Proposed Action.

Black Tern. The analysis for Alternative A is identical to that previously described under the Proposed Action.

Loggerhead Shrike. The analysis for Alternative A is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, a minimum of 26 acres of potential loggerhead shrike nesting habitat would be disturbed by the development of wells and related facilities. The potential for impacting this species is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed and 6 fewer acres of potential shrike habitat will be disturbed.

Burrowing Owl. The analysis for Alternative A is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, a minimum of 31 acres of potential burrowing owl habitat would be eliminated by the development of wells and related facilities. The potential for impacting this species is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed and 8 fewer acres of potential burrowing owl habitat will be disturbed.

4.7.3.2.3 Big Game

Pronghorn Antelope. The analysis for Alternative A is identical to that previously described under the Proposed Action, but the potential for impacting this species is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed. Assuming the uniform distribution of wells described for Alternative A, an estimated 14 well locations would be drilled within crucial pronghorn antelope winter range. The development of these wells along with associated facilities would disturb an estimated 114 acres of crucial winter range within the project area. Reclamation efforts will proceed beginning the first fall after wells go on production and continue through the entire ten-year planning period. Such reclamation includes road ROW, pipelines, partial restoration of active well pads, and total restoration of abandoned well sites that are no longer productive. Under post-reclamation it is assumed that 30 percent of the disturbance is returned to productive pronghorn antelope habitat in 5 years and the balance returned in 8 to 15 years (required for shrub reestablishment). Following these reclamation efforts, disturbance for the crucial winter range of the project area would be reduced to 68 acres. Another 183 and 53 well locations would be constructed within winter/yearlong and

spring/summer/fall pronghorn habitat, respectively. This would result in an additional disturbance of approximately 1,469 acres of winter/yearlong habitat and 426 acres of spring/summer/fall habitat for pronghorn.

Mule Deer. The analysis for Alternative A is identical to that previously described under the Proposed Action. The potential for impacting this species is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed. An estimated 157 of the proposed 250 well locations would be constructed within mule deer winter/yearlong range. The development of these well sites along with associated roads and pipelines would remove approximately 1,262 acres of winter/yearlong habitat within the project area. An additional 13 well locations would be constructed within yearlong mule deer range and would remove an estimated 104 acres of habitat. The remainder of proposed well locations are not in designated mule deer range.

Elk. The analysis for Alternative A is identical to that previously described under the Proposed Action. The potential for impacting this species is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed. An estimated 23 of the proposed 250 well locations would be constructed within yearlong habitat for elk. Total well site and associated road and pipeline construction would initially remove approximately 185 acres of yearlong range for elk during the ten-year planning period. The remainder of the proposed well locations are not in designated elk range.

4.7.3.2.4 Sage Grouse

Alternative A encompasses the same sage grouse breeding and nesting habitat on the project area as the Proposed Action, but involves fewer wells. The proposed development of approximately 67 well sites within nesting habitat for sage grouse would disturb an estimated 538 acres of habitat associated with 13 active leks located on the project area. Occupancy restrictions for active leks under this alternative would essentially be the same as those described for the Proposed Action. The removal of 538 acres of habitat under this alternative would displace some grouse into adjacent areas of similar habitat and would reduce the carrying capacity of the area to support grouse for the life of the project, or until reclamation efforts have replaced the sagebrush habitats that were removed during construction. The application of BLM seasonal occupancy restrictions would result in the avoidance of impacts to breeding and nesting activities and the implementation of a reclamation/habitat restoration plan would, over time, mitigate the long-term loss of sage grouse habitats.

4.7.3.2.5 Raptors

The analysis for Alternative A is identical to that previously described under the Proposed Action, however, the potential for impacting this species is moderately lower than the Proposed Action in that 50 fewer well locations will be constructed.

4.7.3.2.6 Vehicle Collisions

The analysis for Alternative A is identical to that previously described under the Proposed Action except that the potential for impacting wildlife is moderately lower than the Proposed Action in that 50 fewer well locations and associated roads will be constructed. Initially, 402 fewer acres would be disturbed, but in the long-term, following reclamation and assuming production on all well sites, 226 fewer acres would be disturbed.

4.7.3.2.7 Human Harassment

The analysis for Alternative A is identical to that previously described under the Proposed Action except that the potential for impacting wildlife is moderately lower than the Proposed Action in that 50 fewer well locations and associated roads will be constructed and the construction work force would be in place proportionately less time. Initially, 402 fewer acres would be disturbed, but in the long-term, following reclamation and assuming production on all well sites, 226 fewer acres would be disturbed.

4.7.3.2.8 Noise

The analysis for Alternative A is identical to that previously described under the Proposed Action except that the potential for impacting wildlife is moderately lower than the Proposed Action in that 50 fewer well locations would be constructed and their associated noise eliminated from surrounding areas of habitat.

4.7.3.3 Alternative B

This alternative would provide a minimum development scenario of 225 production wells and related facilities at 200 locations through the next ten-year planning period. The analysis of impacts to wildlife for this alternative is based on an average density of 0.42 well pads per section with an associated disturbance of 8.03 acres per well site, which includes 5.0 acres for the pad and 3.03 acres for associated roads and pipelines. The types of impacts under this alternative are identical to those described under the Proposed Action; however, the magnitude of potential impacts under Alternative B is somewhat less than the Proposed Action because of the smaller number of well locations and miles of road and pipeline proposed. Similar to the Proposed Action, this scenario is based on the assumption of a uniform distribution of well sites over the entire project area (excluding areas with existing well densities of two per Section) rather than on specific designated well site locations, since specific well sites have not been designated. Development at this level would disturb approximately 1,613 acres of wildlife habitat over the next ten-year planning period. This includes a total of 1,000 acres associated with well pad construction, 606 acres for related access roads and pipeline construction, and 7 acres for the construction of the compressor station. Following initial reclamation efforts, disturbed acreage would be reduced to an estimated 724 acres on which on-going project activities remain throughout the 30-year life of production. Vegetation would become re-

established along the pipeline ROW beginning the first fall after wells start producing and would continue with the subsequent reclamation of abandoned well sites that are no longer productive.

4.7.3.3.1 Threatened and Endangered Species

Black-footed Ferret. The analysis for Alternative B is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, a minimum of 24 acres of potential black-footed ferret habitat would be disturbed by the development of wells and related facilities. However, the potential for impacting this species, if present, is lower than for the Proposed Action in that 100 fewer well locations will be constructed and 15 fewer acres of potential ferret habitat would be disturbed.

Bald Eagle. The analysis for Alternative B is identical to that previously described under the Proposed Action.

Whooping Crane. The analysis for Alternative B is identical to that previously described under the Proposed Action.

4.7.3.3.2 Candidate Wildlife Species

White-Faced Ibis. The analysis for Alternative B is identical to that previously described under the Proposed Action.

Ferruginous Hawk. The analysis for Alternative B is identical to that previously described under the Proposed Action. As with the other alternatives, the primary potential impact to raptors from project activities is disturbance during nesting that might result in reproductive failure. However, the potential for impacting this species, is lower than the Proposed Action in that 100 fewer well locations will be constructed. Disturbances would be mitigated by implementation of standard seasonal buffer restrictions around active raptor nests; the same as those described for the Proposed Action. Depending on the radius applied, from 126 to 2,010 acres per occupied nest could be subject to seasonal restrictions from three to six months.

Columbian Sharp-Tailed Grouse. The analysis for Alternative B is identical to that previously described under the Proposed Action.

Mountain Plover. The analysis for Alternative B is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, a minimum of 24 acres of potential mountain plover nesting habitat would be disturbed by the development of wells and related facilities. However, the potential for impacting this species is lower than for the Proposed Action in that 100 fewer well locations will be constructed and 15 fewer acres of potential plover habitat would be disturbed.

Long-Billed Curlew. The analysis for Alternative B is identical to that previously described under the Proposed Action.

Black Tern. The analysis for Alternative B is identical to that previously described under the Proposed Action.

Loggerhead Shrike. The analysis for Alternative B is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, a minimum of 21 acres of potential loggerhead shrike nesting habitat would be disturbed by the development of wells and related facilities. However, the potential for impacting this species is lower than for the Proposed Action in that 100 fewer well locations will be constructed and 11 fewer acres of potential shrike habitat would be disturbed.

Burrowing Owl. The analysis for Alternative B is identical to that previously described under the Proposed Action. Depending on the distribution of proposed new wells over the project area, a minimum of 24 acres of potential burrowing owl habitat would be disturbed by the development of wells and related facilities. However, the potential for impacting this species is lower than for the Proposed Action in that 100 fewer well locations will be constructed and 15 fewer acres of potential burrowing owl habitat would be disturbed.

4.7.3.3.3 Big Game

Pronghorn Antelope. The analysis for Alternative B is identical to that previously described under the Proposed Action. The potential for impacting pronghorn is lower than the Proposed Action in that 100 fewer well locations will be constructed. Assuming uniform distribution of wells over the entire analysis area, an estimated 12 well locations would be drilled within crucial pronghorn antelope winter range. The development of these wells along with associated facilities would disturb approximately 97 acres of crucial winter range within the project area. Following initial reclamation efforts, disturbance for the crucial winter range of the project area would be reduced to 56 acres in 5 years and the balance returned in 8 to 15 years.

Another 146 and 42 well locations would be constructed within winter/yearlong and spring/summer/fall pronghorn habitat, respectively. This would result in an additional disturbance of approximately 1,172 acres of winter/yearlong habitat and 337 acres of spring/summer/fall habitat for pronghorn antelope.

Mule Deer. The analysis for Alternative B is identical to that previously described under the Proposed Action. The potential for impacting mule deer is lower than the Proposed Action in that 100 fewer well locations will be constructed. An estimated 126 of the proposed 200 well locations would be constructed within mule deer winter/yearlong range. The development of these well sites along with associated roads and pipelines would remove approximately 1,012 acres of winter/yearlong habitat within the project area. An additional 10 well locations would

be constructed within yearlong mule deer range and would remove an estimated 80 acres of habitat. The remainder of proposed well locations are not in designated mule deer range.

Elk. The analysis for Alternative B is identical to that previously described under the Proposed Action. The potential for impacting elk is lower than the Proposed Action in that 100 fewer well locations will be constructed. An estimated 19 of the proposed 200 well locations would be constructed within yearlong habitat for elk. Total well site and associated road and pipeline construction would initially remove approximately 153 acres of yearlong range for elk during the ten-year planning period. The remainder of the proposed well locations are not in designated elk range.

4.7.3.3.4 Sage Grouse

The analysis for Alternative B is identical to that previously described under the Proposed Action. The potential for impacting sage grouse is lower than the Proposed Action in that 100 fewer well locations will be constructed. The proposed development of approximately 54 well sites within nesting habitat for sage grouse would remove an estimated 434 acres of habitat associated with 13 active leks located on the project area.

4.7.3.3.5 Raptors

The analysis for Alternative B is identical to that previously described under the Proposed Action; however, the potential for impacting this species is lower than the Proposed Action in that 100 fewer well locations will be constructed.

4.7.3.3.6 Vehicle Collisions

The analysis for Alternative B is identical to that previously described under the Proposed Action except that the potential for impacting wildlife is lower than the Proposed Action in that 100 fewer well locations and associated roads will be constructed. Initially, 803 fewer acres would be disturbed, but in the long-term, following reclamation and assuming production on all well sites, 452 fewer acres would be disturbed.

4.7.3.3.7 Human Harassment

The analysis for Alternative B is identical to that previously described under the Proposed Action except that the potential for impacting wildlife is lower than the Proposed Action in that 100 fewer well locations and associated roads will be constructed and the construction work force would be in place proportionately less time. Initially, 803 fewer acres would be disturbed, but in the long-term, following reclamation and assuming production on all well sites, 452 fewer acres would be disturbed.

4.7.3.3.8 Noise

The analysis for Alternative A is identical to that previously described under the Proposed Action except that the potential for impacting wildlife is moderately lower than the Proposed Action in that 100 fewer well locations would be constructed and their associated noise eliminated from surrounding areas of habitat.

4.7.3.4 Alternative C

As a result of the "No Action" alternative, impacts related to the wildlife resources within the unit area and adjacent lands would continue at current levels. These impacts consist mainly of hunters who travel the existing access roads, current oil and gas developments, and livestock grazing and associated activities. Implementation of this alternative would maintain the current level of human activity and associated impacts.

4.7.4 Impacts Summary

Impacts and potential impacts to wildlife are classified into three basic categories. The first category includes technically significant impacts that have the potential to occur but would be unlikely to occur if prescribed avoidance measures are implemented. The second category includes technically significant impacts that would occur but that could be reduced to non-significant levels through the application of prescribed mitigation measures. The third category includes other important, but technically non-significant potential impacts for which avoidance or mitigation measures may or may not have been prescribed.

Category One impacts include the following: (1) increased potential for illegal kill and harassment of wildlife, (2) potential for disruption of raptor and sage grouse nesting activities, (3) potential for striking bald eagles with vehicles, (4) potential to adversely impact black-footed ferrets, (5) potential for displacement of pronghorn from crucial winter range, and (6) potential to adversely affect nesting ferruginous hawks, mountain plovers, loggerhead shrikes and white-faced ibises.

Category Two impacts include the following: (1) long-term loss of sage grouse nesting habitat, (2) increase in potential for wildlife/vehicle collisions, and (3) long-term loss of crucial big game winter range.

Category Three impacts include the following: (1) long-term and short-term losses of non-crucial habitat of wildlife, and (2) temporary displacement of wildlife during the construction period.

Direct loss of wildlife habitat would result from the clearing of existing vegetation from the drill sites and access roads. Pipelines would be constructed in association with the access roads and would not increase the amount of habitat loss. For wells that are dry holes, this impact would be short-term and would persist only until the application of appropriate reclamation procedures and

natural biotic succession restore the disturbed area to pre-disturbance use levels. For wells that produce, this impact would persist throughout the life of the well. On productive wells, approximately 24 percent of the disturbed area will be reclaimed following completion of drilling.

Some wildlife species would be indirectly impacted by being displaced from habitats in the vicinity of the project area by the presence and activities of humans associated with construction and operation. The severity of this impact would decrease over time as wildlife habituate to the operation, but some degree of impact would remain as long as human activities continue. On dry holes, this impact would be short-term and would persist only until the well site is reclaimed and abandoned. On production wells, some reduced level of impact would persist throughout the life of the well.

The potential for collisions between wildlife and motor vehicles would increase due to the construction of new roads and increased traffic levels on existing roads leading to the project area. Such collisions result in death or injury to a variety of wildlife species and can produce a road-kill food chain whereby scavengers that feed on road-killed animals could in turn be struck by vehicles.

The potential for displacement, vehicular collisions, and poaching/harassment would be greater during the drilling construction phase when human activities on the area are at the maximum. The potential for these impacts would be reduced as wells are either reclaimed or put into production.

Although the nature of potential impacts to wildlife is identical between the Proposed Action and Alternatives A and B, the potential magnitude of impacts is highest under the Proposed Action, intermediate under Alternative A, and least under Alternative B. This is because of the difference in the number of wells and the associated increase in miles of new roads and pipelines constructed. Given the application of prescribed avoidance and mitigation measures listed in Section 2.3.4.2.7, Appendix A, and under individual species in Section 4.7, significant impacts to wildlife are not expected. Implementation of Alternative C would maintain the current level of human activity and associated impacts.

4.7.5 Cumulative Impacts

Cumulative impacts have been assessed on the basis of combining the effects from three different sources. These sources consist of: (1) other proposed, on-going, or recent projects within the area affected by the proposed action or alternatives, (2) existing or historical impacts, and (3) the action and alternatives proposed in this EIS. The analysis of cumulative impacts from the development of gas wells and associated facilities assumes a uniform distribution of well sites over the entire project area, based on existing WOGCC approved spacing within individual fields. The rationale behind this analysis is the fact that actual well site locations have not been designated and assumptions cannot be made as to the precise number of wells per section, since specific well locations would be directed by the success of developmental drilling and production

technology, economic considerations such as the cost of development of leases with marginal profitability, and topographic considerations.

Existing disturbance within the GWA II analysis area is 12,527 acres or 3.7 percent of 334,191 acres. Disturbance under the Proposed Action would add 1,086 acres over the long term and bring the cumulative disturbance within the GWA II analysis area to 13,613 acres. Under Alternatives A and B, the amount of disturbed acreage would add 905 and 724 acres to the existing disturbance, bringing the total cumulative disturbance to 13,432 and 13,251 acres, respectively.

4.7.5.1 Pronghorn Antelope

Existing or historical impacts to pronghorn crucial ranges were calculated at the herd unit level for the GWA II analysis area. These calculations were limited to pronghorn since it is the only big game species that has crucial range on the GWA II analysis area. Existing disturbance within designated crucial winter range was estimated for the Red Desert and Bitter Creek herd units from USGS 1:24,000 scale topographic maps that were current as late as 1986. Information on mineral development projects implemented after the most recently published quads was obtained from existing EAs and EISs, basin-wide reconnaissance reports, and personal communications with other appropriate state and federal agencies. Projects within the Great Divide Basin that were considered in the analysis of cumulative impacts to pronghorn are: (1) the Mulligan Draw Natural Gas Production Project located southeast of the GWA-II, (2) the Creston-Blue Gap Gas Project to the east and southeast, (3) proposed Carbon County Underground Coal Gassification, (4) Baroil Field Development Project, (5) Patrick Draw Oil and Gas Field located to the west of the GWA-II, (6) the Bridger coal mine, and (7) the collective past developments of the region.

Existing disturbance within crucial winter range habitat for pronghorn antelope has reduced the total acreage of this habitat by approximately 3.7 and 0.79 percent within the Red Desert and Bitter Creek herd units, respectively (Table 4-9). This translates to a reduction in the carrying capacity of crucial winter range for pronghorn by approximately 54⁰ animals for the Red Desert herd unit, and 199 animals for the Bitter Creek herd unit. For purposes of analysis in this EIS, carrying capacity reduction numbers were calculated by dividing the WGFD's population objective within each herd unit into the total acreage of crucial winter range within the respective herd unit. The resultant number (acres per animal) was then used as a density estimate of animals applied to the reduced carrying capacity within crucial winter range.

Proposed Action - Under the Proposed Action, there would be an estimated 137 and 2 acres of initial disturbance to crucial winter range within the Red Desert and Bitter Creek herd units, respectively (Table 4-9). This represents a decrease in the carrying capacity for pronghorn within the respective herd units by 9 and 0 animals, respectively. This would result in an additional reduction of approximately 0.06 and 0 percent of crucial winter range within the respective herd units of Red Desert and Bitter Creek and bring the cumulative totals to 3.76 and 0.79 percent, respectively.

With the implementation of the Proposed Action, the carrying capacity on the cumulative crucial winter ranges of the Red Desert and Bitter Creek pronghorn antelope herd units would initially be reduced by 9 animals and, together with the existing reduction in carrying capacity of 748 animals, would increase the cumulative total to 757 animals, or 1.9 percent of overall population objectives for the two herd units.

Alternative A - Initial surface disturbance resulting from the implementation of Alternative A would involve an estimated 112 and 2 acres of available pronghorn antelope crucial winter range within the Red Desert and Bitter Creek herd units, respectively (Table 4-9). Under this alternative, the carrying capacity for pronghorn antelope would be reduced within the Red Desert herd unit by 7 animals and in the Bitter Creek herd unit by 0 animals. The removal of crucial winter range from the Red Desert and Bitter Creek herd units would represent a 0.05 and 0 percent loss in the total available crucial winter range within the respective herd units and bring the cumulative total to 3.75 and 0.79 percent within the Red Desert and Bitter Creek herd units, respectively.

Under Alternative A, the carrying capacity on the cumulative crucial winter ranges of the Red Desert and Bitter Creek pronghorn herd units would initially be reduced by 7 animals and, together with the existing reduction in carrying capacity, of 748 animals, would increase the cumulative total to 755 animals, or 1.9 percent of overall population objectives for the two herd units.

Alternative B - Initial surface disturbance resulting from the implementation of Alternative B would involve an estimated 96 and 1 acre(s) of available pronghorn antelope crucial winter range within the Red Desert and Bitter Creek herd units, respectively (Table 4-9). Under this alternative, the carrying capacity for pronghorn would be reduced within the Red Desert herd unit by 6 animals and in the Bitter Creek herd unit by 0 animals. The removal of crucial winter range from the Red Desert and Bitter Creek herd units would represent a 0.04 and 0 percent loss in the total available crucial winter range within the respective herd units and bring the cumulative total to 3.74 and 0.79 percent within the Red Desert and Bitter Creek herd units, respectively.

Under Alternative B, the carrying capacity on the cumulative crucial winter ranges of the Red Desert and Bitter Creek pronghorn antelope herd units would initially be reduced by 6 animals and, together with the existing reduction in carrying capacity, of 747 animals, would increase the cumulative total to 753 animals, or 1.9 percent of overall population objectives for the two herd units.

At the end of the 30-year life of the well field, under all of the action alternatives, a well-developed mosaic of shrub stands would be present on an estimated 50 percent of the area and would be fully functional as pronghorn winter range. The development of the remaining 50 percent of the area into functional pronghorn winter range is likely to take an additional 8 to 15 years of post reclamation time. Under either the Proposed Action or Alternative A, restoration of pronghorn crucial winter range losses to their pre-disturbance condition would take approximately 50 years.

Table 4-9. Cumulative Effects of Human Disturbance (Long-term) on Crucial Winter Range (Pronghorn) Habitats within Herd Units that Occur on the GWA II Analysis Area.

Acres of Crucial Habitat Lost				
	Herd Unit and Acres of Crucial Habitat			
	Red Desert 224,192 acres		Bitter Creek 194,304 acres	
	Acres	Percent of Total	Acres	Percent of Total
Existing/Historical	8,216	3.7	1,543	0.79
Proposed Action	137	0.06	2	0.00
Alternative A	112	0.05	2	0.00
Alternative B	96	0.04	1	0.00
TOTAL	8,312 - 8,353	3.74 - 3.76	1,545 - 1,544	0.79

Proposed Action and Alternatives for GWA II Analysis Area. Well spacing limitations of the production field would allow no more than a single well to be placed in the 206 acres of crucial winter range that occurs on the GWA II analysis area. The addition of this single well would result in the long term loss of 4.5 acres or 0.0023 percent of the crucial range.

4.7.5.2 Mule Deer and Elk

Although mule deer and elk occupy portions of the project area year-round there are no crucial ranges for these species within the project area. Therefore, neither of the action alternatives is likely to create impacts that would significantly affect mule deer and elk populations.

4.7.5.3 Raptors

As shown in Table 2-9, the existing disturbance to land area on the GWA II analysis area totals 12,527 acres, or 3.74 percent of the GWA II analysis area. Initially, the actions and alternatives in this EIS would total from 1,613 to 2,416 additional acres, but in the long-term, following reclamation and assuring production on all well sites, from 724 to 1,086 additional acres would be disturbed.

It is not known how many well locations will fall within the 0.75-mile buffer zone around raptor nests, but there are 64 raptor nests (of which 8 were active during 1994) on the GWA II analysis area and it is likely that some of them will be proximal to wells. Mariah Associates (1994) reports that 119 potentially active raptor nests on the Creston/Blue Gap Project Area occur within the 0.75-mile buffer. Other projects in the region also have a collective potential to impact raptor nests.

Although only eight nests were active during 1994, activity status is likely to change in subsequent years. On the basis of current use, from 126 to 2,010 acres per occupied nest could be subject to seasonal restrictions with total acreage varying with the number of active nests. For this reason, a search of construction sites for active raptor nests is recommended prior to any surface disturbing activities. This could be done at the APD level. With the development of an appropriate raptor management plan, including the application of avoidance and mitigation measures imposed on all developments on federal lands, significant cumulative impacts to raptors are not expected.

4.7.5.4 Sage Grouse

As shown in Exhibit 3-8, a total of 22 sage grouse leks occur on the GWA II analysis area. Existing disturbance to sage grouse nesting and breeding habitat has reduced the total acreage of this habitat by approximately 1,182 acres within the project area. Surface disturbance resulting from the implementation of the Proposed Action and Alternative A could disturb an estimated additional 650 and 538 acres of habitat, bringing the cumulative total to 1,832 and 1,720 acres, respectively. Under Alternative B, an estimated 434 acres of sage grouse habitat would be disturbed and bring the cumulative total to 1,616 acres. Mariah Associates (1994) reports that 127 wells on the Creston/Blue Gap Project would occur within sage grouse nesting habitats. Other projects in the region also have a collective potential to impact sage grouse nesting habitat. However, given the implementation of standard BLM stipulations on all of these developments, impacts to breeding and nesting activities would be minimized, but the proposed actions will add to the cumulative loss of nesting habitat by 434-650 acres. Given the mitigation and avoidance measures for sage grouse that are described in this chapter (Section 4.7), the actions and alternatives proposed for the GWA II analysis area project are not expected to significantly increase cumulative impacts to sage grouse.

4.7.5.5 Threatened and Endangered Species

For reasons stated in Sections 4.7.3.1.1, no cumulative impacts to the bald eagle, peregrine falcon and whooping crane are anticipated.

Black-footed Ferret. Existing disturbance to prairie dog colonies within the project area has reduced the acreage of this habitat by approximately 97 acres. This represents 1.5 percent of the total potential habitat available to black-footed ferrets (if present). Under the Proposed Action,

an estimated 39 additional acres of prairie dog colonies would be disturbed over the short term, resulting in the reduction of approximately 0.7 percent of the total available habitat associated with prairie dog colonies in the project area. As a result, the cumulative total area disturbed within prairie dog colonies would increase to 2.2 percent.

Surface disturbance resulting from the actions of Alternative A would initially disturb an estimated 31 acres of potential black-footed ferret habitat within prairie dog colonies. This represents approximately 0.5 percent of the total acreage of prairie dog colonies within the project area and brings the cumulative total disturbance to 2.0 percent. Under Alternative B an estimated 24 acres of potential black-footed ferret habitat would be disturbed within the project area and would bring the cumulative disturbance to 1.9 percent.

Black-footed ferrets (if present) would likely be affected by the proposed level of development under either alternative. As previously mentioned, numerous sightings of ferrets have been recorded within and in proximity to the project area within the last decade (WGFD 1992b); consequently, their local presence cannot be ruled out. For this reason, surface disturbance of prairie dog colonies would not be permitted until after the completion of ferret surveys required by the FWS.

Because of the expanses of white-tailed prairie dog colonies on the GWA II analysis area and in the region surrounding it, suitable habitat for the black-footed ferret exists. Because of the high correlation between the occurrence of these colonies and previous earth-disturbing activities associated with oil and gas development in this region, it appears likely that such activities have collectively contributed to the creation of suitable habitat for the black-footed ferret. Ironically, these same human activities can impact ferrets by increasing the potential for: (1) being struck by moving vehicles on existing and new roads, (2) being mistakenly shot as a prairie dog, and (3) being buried or otherwise injured if construction activities overlap active prairie dog burrows. Since all developmental activities in the region are governed by strict FWS and BLM guidelines regarding the inventory of prairie dog colonies and searches for black-footed ferrets, an impact to this species is unlikely.

Given implementation of mitigation stipulations for each of the proposed gas developments in this region, and applicable federal regulations, the potential for significant cumulative impacts to threatened and endangered species is low.

4.7.5.6 Candidate Species

For reasons stated in Sections 4.7.3.1.2, no cumulative impacts to the white-faced ibis, Columbia sharp-tailed grouse, long-billed curlew, and black tern are anticipated.

Mountain Plover. The extent of existing disturbance within known mountain plover habitat has reduced the total acreage of this habitat by approximately 1.5 percent. Assuming uniform distribution of proposed new wells over the project area, an estimated 39, 31, and 24 acres of

potential mountain plover habitat would be disturbed within the project area under the Proposed Action, Alternative A, and Alternative B, respectively. This represents a 0.7, 0.5, and 0.4 percent reduction in the total potential habitat for mountain plovers in the project area, and together with the existing disturbance, raises the cumulative totals to 2.2, 2.0, and 1.9 percent under the respective alternatives of the Proposed Action, Alternative A, and Alternative B.

Potential plover habitat was quantified based on the total acreage of existing prairie dog colonies. Mountain plover may reside in additional areas outside of prairie dog colonies, such as relatively barren areas with short grass. Nevertheless, from 24 to 39 acres of mountain plover habitat would be disturbed under the various alternatives. Impacts could be prevented or greatly reduced by avoiding well placement, or greatly reducing the density of wells placed within areas of known mountain plover habitat, and by avoiding construction during the nesting period from late April through mid-June and within areas of known mountain plover habitat. The FWS will be contacted and consultation on required action requested.

Loggerhead Shrike. The degree of existing disturbance within known loggerhead shrike habitat has reduced the amount of habitat available to this species by 53 acres or 1.3 percent. A minimum of 32, 26, and 21 acres of known loggerhead shrike habitat would be disturbed within the project area by the implementation of the Proposed Action, Alternative A, and Alternative B, respectively. This represents an additional reduction of approximately 0.8, 0.7, and 0.5 percent of known loggerhead shrike habitat under the respective alternatives and brings the cumulative total disturbance to 2.1, 2.0, and 1.8 percent respectively. Consequently, loggerhead shrike populations could be adversely affected under either alternative, however, these impacts would be prevented by avoiding construction during the nesting period from early April through mid-July and reducing or avoiding well placement within areas of known loggerhead shrike habitat. The addition of suitable native shrub species to the reclamation mix would also accelerate the re-establishment of shrike nesting habitat.

Burrowing Owl. The extent of existing disturbance within burrowing owl habitat has reduced the total acreage of this habitat by approximately 1.5 percent. Assuming uniform distribution of proposed new wells over the project area, a minimum of 39, 31, and 24 acres of potential burrowing owl habitat would be disturbed within the project area under the Proposed Action, Alternative A, and Alternative B, respectively. This represents a 0.7, 0.5, and 0.4 percent reduction in the total potential habitat for burrowing owls in the project area, and together with existing disturbance, raises the cumulative total to 2.2, 2.0, and 1.9 percent under the respective alternatives of the Proposed Action, Alternative A, and Alternative B.

The disturbance of this habitat could displace some burrowing owls into surrounding areas. Because these areas contain over 6,000 acres of prairie dog colonies which constitute prime nesting habitat of this species, such displacements are not expected to produce adverse or irretrievable impacts. In addition, Measure 7 in Section 2.3.4.2.7 states that construction during the critical nesting season will be restricted when an active raptor nest occurs within 3/4 mile of a proposed well location.

4.7.5.7 Other Wildlife

Given implementation of mitigation stipulations for each of the proposed gas developments in this region, and applicable federal regulations, the potential for significant cumulative impacts to other wildlife species is low.

4.7.5.8 Vehicle Collisions

The cumulative potential for vehicle collisions with wildlife is high when all of the new roads and increased traffic from the several projects in the area are considered collectively. However, with implementation of mitigation stipulations for each of these projects this potential is not expected to reach significant levels.

4.7.6 Mitigation Summary

Given the implementation of avoidance and mitigation measures described in Section 2.3.4.2.7, Appendix A, and under individual species in Section 4.7, significant impacts are not expected.

4.7.7 Residual Impacts

Unavoidable impacts that would occur throughout the life of the project include: (1) a loss of some wildlife habitat, (2) some increase in potential for vehicle related wildlife injuries, stress, and mortality, (3) the displacement of sensitive wildlife species from some habitats, and (4) some increase in potential for disruption and mortality of wildlife from use of the area by the general public. Implementation of mitigation as summarized previously would mitigate or reduce impacts to levels not considered significant.

4.10 VISUAL RESOURCES

4.10.3.1 Proposed Action

Page 4-77. Paragraph 1, line 15. Change "Class 3" to "Class 4."

Page 4-77. Paragraph 1, line 16. Delete the first part of the sentence that reads "These short-term impacts would exceed the level of contrast permitted in Class 3 areas;" Begin sentence with "However, because impacts would be short-term, and no more than..."

Page 4-78. Paragraph 1. Entire paragraph rewritten to read, "Successful implementation of recommended mitigation measures would reduce contrasts to levels permitted in the Class 4 zone. Impacts would not be considered significant. They would however detract from the experience of motorists (particularly tourists), Amtrak passengers, and backcountry recreationists. Successful implementation of recommended mitigation measures would reduce contrasts. Development

visible from I-80 and Highway 789 includes production facilities, storage tanks, roads and pipelines.

4.10.3.2 Alternative A

Page 4-78. Paragraph 1, line 6. Delete the words "to non-significant levels" and change "Class 3" to "Class 4." The sentence should read "Depending on site specific conditions and the level of reduction of wells located in the I-80 viewshed, adverse long-term impacts could be reduced in the Class 4 zone in this alternative."

4.10.3.3 Alternative B

Page 4-78. Paragraph 1, line 4. Delete the words "to non-significant levels" and change "Class 3" to "Class 4."

4.10.4 Impact Summary

Page 4-79. Paragraph 1, line 3. Add the words "and Alternative A" after "Proposed Action."

Page 4-79. Paragraph 1, line 4. Delete entire sentence "The Proposed Action and Alternative A could produce significant impacts if all potential well locations in the Class 3 zone, I-80/Wyoming Highway 789 viewshed were developed."

Page 4-79. Paragraph 1, line 6. Delete the words "would not be considered significant, but." Sentence should read "Impacts for Alternatives B and C would detract from the experience of motorists, Amtrak passengers, and backcountry recreationists."

4.10.5 Cumulative Impacts

Page 4-79. Paragraph 1, line 4. Add new sentence after "...Human Dominated in the I-80 viewshed." Sentence should read "This area was mapped as a higher sensitivity environment (Foreground-Middleground--See Exhibit 3-10 in the DEIS) due to ready visual access by travelers of I-80 and on Amtrak."

4.10.6 Residual Impacts

Page 4-79. Paragraph 1, line 2. Delete the following sentence "Once activities are terminated, compliance with recommended cleanup and reclamation procedures would bring the area into compliance with Class 3 zone permitted levels of contrast."

4.11 CULTURAL RESOURCES

4.11.3.1 Alternative A

Page 4-81. Paragraph 1, line 8. Change sentence to read "Additionally, if the portion of a site crossed by earth-disturbing activity does not possess the qualities that make the site eligible, the project may be judged to have no adverse effect on the site."

REFERENCES CITED

Page R-17. Delete citation: "Wyoming Game and Fish Department (WGFD). 1981. Wildlife Observation System."

Add the following citations:

Amstrup, S.C. 1977. Effects of coal strip mining on habitat use, activities and population trends of sharp-tailed grouse (*Pedioecetes phasianellus*). Annual Progress Report, Wildlife Research Work Unit, Denver Wildlife Research Center, Denver, Colorado.

Hayden-Wing Associates (HWA). 1994. Prairie dog colony and sage grouse lek surveys on the Greater Wamsutter Analysis Area. Unpubl. report prepared for the BLM, Great Divide Resource Area, and Gary Holsan Environmental Planning. 9 pp. plus appendices, maps, and tables.

_____. 1995. Biological Assessment of Threatened, Endangered, and Candidate Fish and Wildlife Species for the Greater Wamsutter Area II.

Wildlife Society. 1990. Standardized definitions for seasonal wildlife ranges. Unpubl. Draft Report. TWS, Wyoming Chapter, Cheyenne, WY.

Wyoming Game and Fish Department (WGFD). 1995. Letter from Joe White, Deputy Director, Wyoming Game and Fish Department, Cheyenne, WY to Julie Hamilton, Wyoming State Clearinghouse, Office of the Governor, Cheyenne, WY. March 15, 1995. Comments regarding the Draft Environmental Impact Statement for the Greater Wamsutter Analysis Area II Natural Gas Development Project, Sweetwater and Carbon Counties, WY.

APPENDIX C.2

Page C-8. No. 4. Change text from "A casing program will be submitted for the deepest APD." to read "A casing program will be submitted for each well."

Page C-8. No. 5a. Delete all existing text after the first sentence and replace as follows: "All testing of the blowout preventer stack will be accomplished per Onshore Oil and Gas Order #2."

Page C-8. No. 5. Add the following: "f. The frequency of testing the BOP is: 1) when initially installed; 2) whenever any seal subject to test pressure is broken; 3) following related repairs; and 4) at 30 day intervals."

Page C-10. No. 9b. Change to read "The production casing and cement need to be sufficient to isolate and protect water, hydrocarbon, and other valuable mineral zones."

CUMULATIVE IMPACTS ANALYSIS

1.0 INTRODUCTION

The GWA II Draft Environmental Impact Statement (DEIS) provided a description of impacts likely to occur due to implementation of the GWA II Natural Gas Development Project in combination with other ongoing activities, recently constructed projects, and projects likely to be implemented in the near future (reasonably foreseeable future actions), regardless of what agency (Federal or non-Federal) or person was undertaking these other actions. Several comments on the DEIS suggested that cumulative impacts were not addressed or were incompletely addressed.

2.0 COMMENTS ON THE CUMULATIVE IMPACT ASSESSMENT IN THE DEIS

Comments on the DEIS were received from the WGFD regarding the need to incorporate additional area within crucial winter range in the Wildlife cumulative impacts assessment (CIA) for pronghorn. This request includes the Bairoil development located north of the GWA II analysis area, the Carbon County Underground Coal Gassification (UCG) project located east of the GWA II analysis area, and the Continental Divide Natural Gas Development Project located immediately west and north of the GWA II analysis area. With the exception of the Continental Divide project, these areas have been included in a revised CIA for pronghorn presented in this section.

A comment was received on the DEIS concerning why the Amoco Production Company's Continental Divide natural gas development project was not included in the GWA II CIA. The Continental Divide project was not included in the GWA II CIA because at the time the draft EIS was being finalized, the Bureau of Land Management (BLM) did not have a defined proposal from Amoco and other operators as to what was planned within the Continental Divide area. The BLM did not receive draft copies of a preparation plan from Amoco until February 1995, a month after the GWA II DEIS was distributed to the public.

The following narrative is provided so the reader will understand the level of possible future activity associated with the proposed Continental Divide project and potential environmental impacts within the region. An intensive analysis of unit-specific impacts and cumulative impacts will be addressed in the Continental Divide EIS and will be available for review by all interested publics.

The Continental Divide proposal is generally located in Townships 15 through 23 North, Ranges 91 through 99 West in south-central Wyoming, and encompasses approximately 660,000 acres of mixed (checkerboard) federal (340,000 acres), State (7,000 acres), and private (313,000 acres) lands. The Continental Divide project area is approximately 25 miles west of Rawlins and 40 miles east of Rock Springs along Interstate Highway 80 (I-80). The Continental Divide proposed analysis area is north and west of, and adjacent to, the GWA II analysis area.

For the Continental Divide project, the proposed action consists of drilling and developing approximately 1,250 well locations and associated facilities within the analysis area beginning in 1996 and continuing for the next ten years. Proposed well spacing patterns would vary from 160 to 640 acres per well. The Continental Divide Area presently contains 34 active producing wells in the area, and additional wells could be permitted during the NEPA process currently underway. Currently, three alternatives to the proposed action are under consideration. These include development of 250 well locations (minimum development scenario), development of 2,000 well locations (maximum development scenario), and the "No Action" alternative.

3.0 GWA II CUMULATIVE IMPACTS ANALYSIS PROCESS

The following section has been prepared to present the CIA in one location within the GWA II FEIS document. The CIA was completed following the basic directions provided in the *Guidelines for Assessing and Documenting Cumulative Impacts* (USDI-BLM 1994c). These guidelines are intended to be used by the BLM when incorporating CIA principles into the preparation of environmental assessments (EAs) and environmental impact statements (EISs) and in meeting other requirements of the National Environmental Policy Act (NEPA). These guidelines emphasize the full consideration of cumulative impacts in the NEPA process.

The CIA presented in the GWA II DEIS analyzed each resource element in terms of its own geographical/management area/vegetative community parameters (USDI-BLM 1995). For most of the resource elements analyzed, the boundary for the CIA area was the same as the GWA II analysis area boundary. Exceptions to the use of the GWA II analysis area as the boundary for the CIA area included Soils, Water Resources, Vegetation and Wetlands, and Wildlife. The following analyses were primarily extracted from discussions provided in the DEIS. Additions and modifications have been made, as appropriate, in response to viewer comments.

3.1 Geology/Paleontology

Exhibit CIA-1 depicts other minerals development projects in the vicinity of the GWA II analysis area. No cumulative adverse impacts to fossil resources beyond those described above are likely to occur as a result of the Proposed Action or the alternatives in combination with other ongoing activities, recently constructed project, or projects likely to be implemented in the near future. Adoption and implementation of mitigation measures described in Section 4.1.2.6 of the DEIS would foster long-term cumulative beneficial impacts of the project.

3.2 Air Quality

The air quality impacts prompted by the applicant's proposed action, and by Alternatives A and B, would add to the existing air quality impacts already caused by pollutant sources currently located in the area. The air quality impacts shown in Table CIA-1 reflect the cumulative impact of the proposed new well sites, existing well sites, and background concentration. These cumulative impacts fully comply with the allowable Wyoming air quality standards.

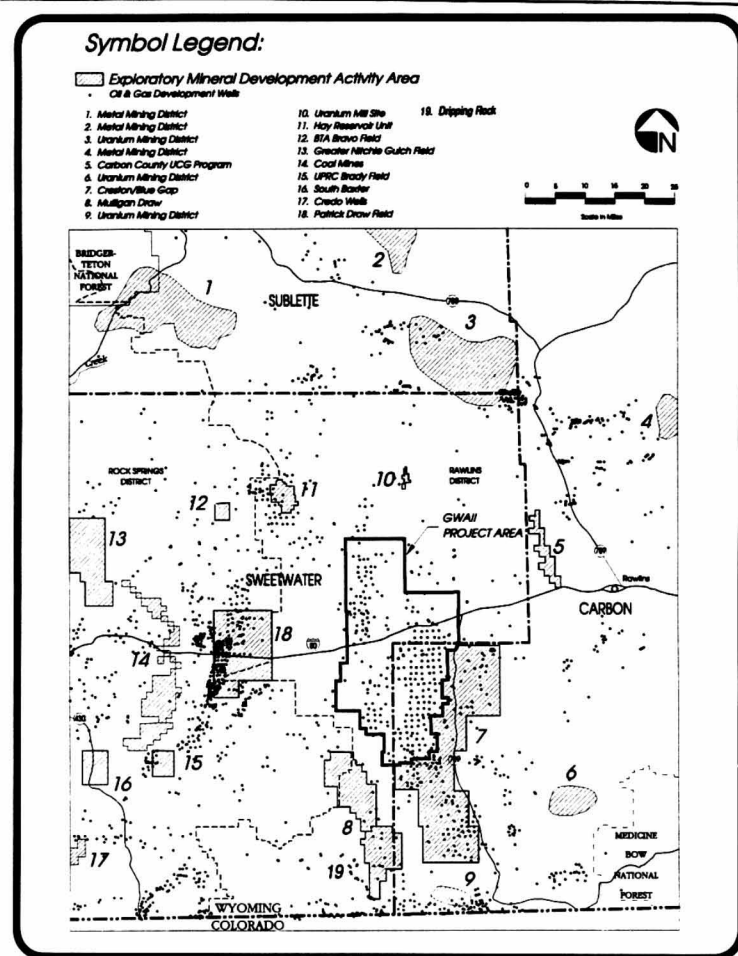


Exhibit CIA-1. Other Minerals Development Projects in the Vicinity of the GWA II Analysis Area.

Table CIA-1. Comparison of Modeled Concentrations with WAAQS ($\mu\text{g}/\text{m}^3$).

Pollutant	Modeled Concentration	Background Concentration	Total Concentration	Wyoming Standard
NO _x Annual	6.1	3	9.1	100
PM ₁₀ 24-hour Annual	100.6 0.7	45 12	145.6 12.7	150 50
CO 1-hour 8-hour	137.0 57.8	3,500 1,500	3,637.0 1,557.8	40,000 10,000
SO ₂ 3-hour 24-hour Annual	75.0 34.1 0.4	63 32 2	138.0 66.1 2.4	1,300 60 60

3.3 Soils

The CIA for soils was accomplished following BLM guidelines (USDI-BLM 1994c) using USGS-delineated watershed and hydrologic unit polygons (USGS undated). The polygon map was overlaid on a comparably scaled map of the analysis area to determine the hydrologic units included in or touched by the GWA II project boundary. Collectively, these polygons formed the CIA area watershed, which covers an area of 1,114,191 ac. Cumulative impacts within the project area watershed were divided into two geographic areas for purposes of analysis: the area within the GWA II boundary (334,190 ac) and the area outside the GWA II boundary but within the CIA area (780,440 ac). Exhibit CIA-2 depicts the location and relationship of the GWA II analysis area and the considered watersheds.

Since the cumulative impacts assessment involves the degree of existing disturbance, aerial photography (scale: 1" = 24,000') was taken for the GWA II analysis area, specifically in May 1994. Detailed photo interpretation, as described in the Soils and Water Resources Technical Report (ECOTONE 1995a), was accomplished to identify, delineate, and map all discernable existing disturbances. Notes on the nature of various disturbances were made during field investigations. Categories of existing disturbance included the following: urban areas, railroad, roadways (i.e., collector, local, resource, and unimproved roads), pipelines, drill/well sites, and facilities sites. Areas of cumulative disturbance delineated on the aerial photographs were transferred to 7.5-minute topographic quads.

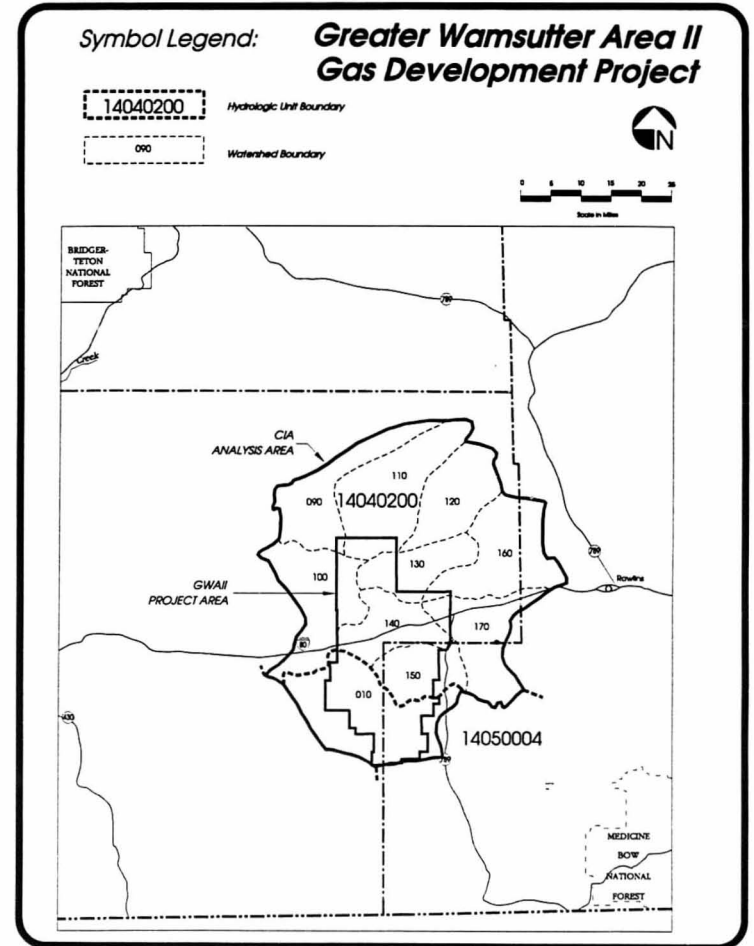


Exhibit CIA-2. Watershed Boundaries Used in the Cumulative Impacts Analysis (CIA).

For geographic areas outside the GWA II boundary but within the CIA area, existing disturbances were initially identified from features on topographic maps (current for 1985). Because significant additional disturbance has occurred in the CIA area since the maps were published, disturbances after 1985 were estimated based on the level of additional activity measured within the GWA II area indicated on the aerial photographs as compared to the topographic maps.

Mineral development projects within the CIA area were identified from a BLM map (USDI-BLM undated). Only those projects occurring entirely or partially within the CIA area were included: existing Wamsutter field development, Colorado Interstate Gas Uinta Basin Lateral pipeline project, Echo Springs Gas Gathering System, Uranium Mill Site, Carbon County UCG Program, and Creston/Blue Gap field development. Only a portion of the latter two projects fall within the CIA area. As such, the existing disturbance and future disturbances due to those project are included in the cumulative impact analysis. No other permitted projects within the CIA area are evident at this time. The Mulligan Draw, Hay Reservoir, Dripping Rock, and Patrick Draw projects are located outside of the CIA area.

Polygons for all disturbances were digitized into a Geographic Information System (GIS) database for data manipulation and analysis. Such manipulation included a tally of the cumulative disturbance area covered by each soil map unit. GIS was used to develop a base map of existing disturbance (Map 1).

3.3.1 GWA II Analysis Area

Existing disturbance within the GWA II analysis area is approximately 12,527 acres, or around 3.7 percent of the 334,191-acre GWA II analysis area (Table CIA-2). During the construction phase, the Proposed Action would add 2,416 acres of impact for a cumulative area of 14,943 acres (4.5 percent). Alternative A would increase existing disturbance by 2,015 acres to 14,542 acres (4.4 percent). Alternative B would produce 1,613 acres of new impact for a total of 14,140 acres (4.2 percent). Under Alternative C, additional surface disturbance beyond the existing 12,527 acres would occur on a case-by-case basis. It is anticipated that such impact would be between 3.7 and 4.5 percent of the GWA II analysis area.

Impacts within the GWA II analysis area would be reduced upon reclamation of pipeline ROWs and unused portions of the drill pads during the production phase for each alternative. Under the Proposed Action, reclamation would reduce impacts by 1,052 to 1,364 acres for a cumulative impact of 4.2 percent of the GWA II analysis area. Table CIA-3 summarizes the cumulative disturbance impacts within the GWA II analysis area due to the existing disturbance and the Proposed Action. Alternative A impacts would decrease by 877 to 1,138 acres, with cumulative impacts affecting 4.1 percent of the GWA II analysis area.

With reclamation, Alternative B impacts would drop by 701 to 912 acres; therefore, cumulative impacts would drop to 4.0 percent of the GWA II analysis area. The cumulative impacts within the GWA II analysis area include Colorado Interstate Gas Uinta Basin Lateral pipeline project,

Table CIA-2. Existing Disturbance within the GWA II Analysis Area.

Disturbance Feature	Area of Impact (acres)	Percent of Existing Disturbance	Percent of Total Area in GWA II
Urban	510	4.1	0.15
Railroad	676	5.4	0.20
Roads			
Public Roads	1,066	8.5	0.32
Collector Roads	784	6.3	0.23
Local Roads	1,726	13.8	0.52
Resource Roads	1,469	11.7	0.44
Unimproved Roads	435	3.5	0.13
Subtotal Roads	5,480	43.8	1.64
Pipelines	4,688	37.3	1.40
Drill/Well Sites	1,000	8.0	0.30
Facilities Sites	173	1.4	0.05
TOTAL	12,527	100.0	3.74

the Echo Springs Gas Gathering System, other gas field and resource development activities, and disturbances due to previous unimproved roads. The cumulative impact within the GWA II analysis area would not exceed the significance threshold of 10 percent.

3.3.2 Cumulative Impacts Assessment Area

Approximately 4,403 acres of disturbance was estimated as of 1985, or 0.6 percent of the CIA area outside of the GWA II analysis area. Correcting for current disturbance using an environmentally conservative approach, the true magnitude of existing disturbance is probably 200 percent of this total, 8,806 acres, or 1.2 percent of the CIA area. Therefore, the total existing disturbance in the total CIA area (including GWA II analysis area) would be approximately 21,333 acres, or 1.9 percent of the combined CIA and GWA II areas.

Impacts due to the Proposed Action would be approximately 2,416 acres. This combined with the existing disturbance in the CIA and GWA II areas would be approximately 23,749 acres or 2.1 percent of the combined area of 1,114,630 acres. This analysis indicates that the total cumulative impact in the combined CIA area would not exceed the three percent significance threshold. Therefore, cumulative impacts to soils would not be significant.

Table CIA-3. Summary of Cumulative Disturbance within the GWA II Analysis Area Due to Existing Disturbance and the Proposed Action.

Facility Type	Existing Disturbance	Proposed Action							
		Construction Disturbance				Production Disturbance			
		New Disturbance Area	Cumulative Total	Cumulative Percent	Percent of GWA II	Residual Disturbance	Cumulative Disturbance	Cumulative Percent	Percent of GWA II
Urban	510	0	510	3.4	0.15	0	510	3.70	0.15
Railroad	676	0	676	4.5	0.20	0	676	4.90	0.20
Roads/ Pipelines	10,168*	909	11,077	74.2	3.32	727	10,895	78.40	3.26
Well Sites	1,000	1,500	2,500	16.7	0.75	630	1,630	11.70	0.49
Facilities Sites	173	7	180	1.2	0.05	7	180	1.30	0.05
TOTAL	12,527	2,416	14,943	100.0	4.47	1,364	13,891	100.0	4.15

* - a large portion of this area has been/will be reclaimed.

3.4 Water Resources

The process of evaluating cumulative impacts described for Soils was also used for the Water Resources CIA. Existing disturbance within the GWA II analysis area and within the CIA area is discussed under Soils.

Cumulative disturbance in the GWA II analysis area would not significantly impact surface water and groundwater quantity and quality for reasons discussed in the Soil and Water Resources Technical Report (ECOTONE 1995a) and in the DEIS. Cumulative disturbance within the CIA area would also not significantly impact surface water and groundwater quantity and quality. No serious groundwater pollution problems have been detected in the CIA area. Current oil and gas exploration and development activities must comply with federal and state environmental quality laws and, thus, serious water quality and quantity impacts are not expected on a cumulative scale.

Using the current water usage estimate identified in the DEIS as a worst-case indication of total existing water usage, total water usage within the CIA area could be as high as 95,000 ac-ft. Although this is a relatively large quantity of water, it is a relatively minor portion of total surface water and groundwater yield/availability. Therefore, cumulative impacts on surface water and groundwater quantity would not be significant.

3.5 Vegetation and Wetlands

The process described for Soils and presented in the Vegetation and Wetlands Technical Report (ECOTONE 1995b) was used for the Vegetation and Wetlands CIA. Acres of impact for the GWA II analysis area and the CIA area, both before and after reclamation, are described above under Soils. Additional oil and gas development in the future (i.e., beyond that proposed in the EIS) within the CIA area could engender cumulatively significant impacts. However, as no specific projects other than the GWA II have been proposed at this time, the cumulative effects from possible future development projects must be addressed in environmental documents prepared specifically for those projects. Such environmental documents would tier to the cumulative evaluation in the GWA II FEIS to determine if the proposed projects would produce cumulatively significant effects on vegetation resources.

The loss of vegetation, whether due to soil disturbance, increases in fugitive dust, or increase in competition with weedy species, would not be cumulatively significant for either the GWA II analysis area or the CIA area. The possible exceptions to this statement would be the potential losses of waters of the U.S. and plant species of concern and/or habitat. Cumulative negative impacts to wildlife due to habitat loss or habitat avoidance due to human-caused factors are discussed in the following section.

Any unpermitted impact to waters of the U.S. associated with this project or other projects in the vicinity or region would add to the cumulative loss of these important areas. The historical loss of wetlands in the U.S. has been well documented as a major environmental problem. The total

area of wetlands loss in the U.S. (lower 48 states) is not accurately known but is believed to exceed 90,000,000 acres—nearly half the estimated original base. Of this total, 87 percent was due to agricultural conversion, eight percent due to urban development, and five percent due to other causes including mining and transportation (Dahl and Pywell 1989). Within Wyoming, there has been an approximate 38 percent loss of wetlands. An Army Corps of Engineers (COE) approved Section 404 permit with requirements of avoidance of waters of the U.S., including special aquatic sites and wetlands, and proposed and recommended mitigation measures would remove the potential for significant cumulative impacts to these sensitive areas.

No significant cumulative impacts to plant species of concern or their habitat are anticipated for the Proposed Action or alternatives with implementation of mitigation measures proposed by the Operators and those recommended in the GWA II DEIS. Such measures would identify the locations of individuals/potential habitat of plant species of concern prior to earth-surface disturbance. The BLM, in close coordination with the FWS, would then determine specific measures to preclude significant impacts, both on a project level and on a cumulative level. Also, the measures would hinder the establishment and spread of noxious weeds, which could indirectly affect the survivorship of plant species and the quality of potential habitat.

3.6 Range Resources and Other Land Uses

Existing land management and use activities that have impacted the GWA II analysis area to varying degrees include livestock grazing, road construction and use, and construction of other well sites and pipelines. The additional area of disturbance resulting from implementation of either the Proposed Action, Alternative A, or Alternative B would not substantially add to the cumulative impacts already occurring in the area. Other vegetative and range resource disturbances are occurring on lands adjacent to, and in the vicinity of the GWA II project area (Chapter 1 of the DEIS). Implementation of any alternative would add to the cumulative amount of disturbance to vegetation and range due to these projects. However, significant cumulative impacts are not anticipated.

3.7 Wildlife

Cumulative impacts have been assessed on the basis of combining the effects from three different sources. These sources consist of 1) other proposed, on-going, or recent projects within the area affected by the proposed action or alternatives; 2) existing or historical impacts; and 3) the action and alternatives proposed in the DEIS. The analysis of cumulative impacts from the development of gas wells and associated facilities assumes a uniform distribution of well sites over the entire project area, based on existing WOGCC-approved spacing within individual fields. The rationale behind this analysis is the fact that actual well site locations have not been designated and assumptions cannot be made as to the precise number of wells per section, since specific well locations would be directed by the success of developmental drilling and production technology, economic considerations such as the cost of development of leases with marginal profitability, and topographic considerations.

Existing disturbance within the GWA II analysis area is 12,527 acres or 3.7 percent of 334,191 acres. Disturbance under the Proposed Action would add 1,086 acres over the long term and would bring the cumulative disturbance within the GWA II analysis area to 13,613 acres. Under Alternatives A and B, the amount of disturbed acreage would add 905 and 724 acres to the existing disturbance, bringing the total cumulative disturbance to 13,432 and 13,251 acres, respectively.

3.7.1 Pronghorn Antelope

Existing or historical impacts to pronghorn crucial ranges were calculated at the herd unit level for the GWA II analysis area. These calculations were limited to pronghorn since it is the only big game species that has crucial range on the GWA II analysis area. Existing disturbance within designated crucial winter range was estimated for the Red Desert and Bitter Creek herd units from USGS 1:24,000 scale topographic maps that were current as late as 1986. Information on mineral development projects implemented after the most recently published quads was obtained from existing EAs and EISs, basin-wide reconnaissance reports, and personal communications with other appropriate state and federal agencies. Projects within the Great Divide Basin that were considered in the analysis of cumulative impacts to pronghorn antelope are 1) the Mulligan Draw Natural Gas Production Project located southeast of the GWA II area, 2) the Creston-Blue Gap Gas Project to the east and southeast, 3) proposed Carbon County Underground Coal Gassification, 4) Baroil Field Development Project, 5) Patrick Draw Oil and Gas Field located to the west of the GWA II area, 6) the Bridger coal mine, and 7) the collective past developments of the region.

Existing disturbance within crucial winter range habitat for pronghorn has reduced the total acreage of this habitat by approximately 3.7 and 0.79 percent within the Red Desert and Bitter Creek herd units, respectively (Table CIA-4). This translates to a reduction in the carrying capacity of crucial winter range for pronghorn by approximately 549 animals for the Red Desert herd unit, and 199 animals for the Bitter Creek herd unit. For purposes of analysis in this EIS, carrying capacity reduction numbers were calculated by dividing the WGFD's population objective within each herd unit into the total acreage of crucial winter range within the respective herd unit. The resultant number (acres per animal) was then used as a density estimate of animals applied to the reduced carrying capacity within crucial winter range.

Proposed Action - Under the Proposed Action, there would be an estimated 137 and 2 acres of initial disturbance to crucial winter range within the Red Desert and Bitter Creek herd units, respectively (Table CIA-4). This represents a decrease in the carrying capacity for pronghorn within the respective herd units by 9 and 0 animals, respectively. This would result in an additional reduction of approximately 0.06 and 0 percent of crucial winter range within the respective herd units of Red Desert and Bitter Creek and bring the cumulative totals to 3.76 and 0.79 percent, respectively.

Table CIA-4.

Cumulative Effects of Human Disturbance (Long-term) on Crucial Winter Range (Pronghorn) Habitats within Herd Units that Occur on the GWA II Analysis Area.

Action	Acres of Crucial Habitat Lost			
	Herd Unit and Acres of Crucial Habitat			
	Red Desert 224,192 acres		Bitter Creek 194,304 acres	
	Acres	Percent of Total	Acres	Percent of Total
Existing/Historical	8,216	3.7	1,543	0.79
Proposed Action	137	0.06	2	0.00
Alternative A	112	0.05	2	0.00
Alternative B	96	0.04	1	0.00
TOTAL	8,312-8,353	3.74-3.76	1,545-1,544	0.79

With the implementation of the Proposed Action, the carrying capacity on the cumulative crucial winter ranges of the Red Desert and Bitter Creek pronghorn antelope herd units would initially be reduced by 9 animals and, together with the existing reduction in carrying capacity, of 748 animals, would increase the cumulative total to 757 animals, or 1.9 percent of overall population objectives for the two herd units.

Alternative A - Initial surface disturbance resulting from the implementation of Alternative A would involve an estimated 112 and 2 acres of available pronghorn antelope crucial winter range within the Red Desert and Bitter Creek herd units, respectively (Table CIA-4). Under this alternative, the carrying capacity for pronghorn would be reduced within the Red Desert herd unit by 7 animals and in the Bitter Creek herd unit by 0 animals. The removal of crucial winter range from the Red Desert and Bitter Creek herd units would represent a 0.05 and 0 percent loss in the total available crucial winter range within the respective herd units and bring the cumulative total to 3.75 and 0.79 percent within the Red Desert and Bitter Creek herd units, respectively.

Under Alternative A, the carrying capacity on the cumulative crucial winter ranges of the Red Desert and Bitter Creek pronghorn antelope herd units would initially be reduced by 7 animals and, together with the existing reduction in carrying capacity of 748 animals, would increase the cumulative total to 755 animals, or 1.9 percent of overall population objectives for the two herd units.

Alternative B - Initial surface disturbance resulting from the implementation of Alternative B would involve an estimated 96 and 1 acre(s) of available pronghorn antelope crucial winter range within the Red Desert and Bitter Creek herd units, respectively (Table CIA-4). Under this alternative, the carrying capacity for pronghorn would be reduced within the Red Desert herd unit by 6 animals and in the Bitter Creek herd unit by 0 animals. The removal of crucial winter range from the Red Desert and Bitter Creek herd units would represent a 0.04 and 0 percent loss in the total available crucial winter range within the respective herd units and bring the cumulative total to 3.74 and 0.79 percent within the Red Desert and Bitter Creek herd units, respectively.

Under Alternative B, the carrying capacity on the cumulative crucial winter ranges of the Red Desert and Bitter Creek pronghorn antelope herd units would initially be reduced by 6 animals and, together with the existing reduction in carrying capacity, of 747 animals, would increase the cumulative total to 753 animals, or 1.9 percent of overall population objectives for the two herd units.

At the end of the 30-year life of the well field, under all of the action alternative, a well-developed mosaic of shrub stands would be present on an estimated 50 percent of the area and would be fully functional as pronghorn winter range. The development of the remaining 50 percent of the area into functional pronghorn winter range is likely to take an additional 8 to 15 years of post reclamation time. Under either the Proposed Action or Alternative A restoration of pronghorn crucial winter range losses to their pre-disturbance condition would take approximately 50 years.

3.7.2 Mule Deer and Elk

Although mule deer and elk occupy portions of the project area year-round there are no crucial ranges for these species within the project area. Therefore, neither of the action alternatives is likely to create impacts that would significantly affect mule deer and elk populations.

3.7.3 Raptors

As shown in Table CIA-2, the existing disturbance to land area on the GWA II analysis area totals 12,527 acres, or 3.74 percent of the GWA II analysis area. Initially, the actions and alternatives in this EIS would total from 1,613 to 2,416 additional acres, but in the long-term, following reclamation and assuming production on all well sites, from 724 to 1,086 additional acres would be disturbed. It is not known how many well locations will fall within the 0.75-mile buffer zone around raptor nests, but there are 64 raptor nests (of which 8 were active during 1994) on the GWA II analysis area and it is likely that some of them will be proximal to wells. Mariah Associates (1994) reports that 119 potentially active raptor nests on the Creston/Blue Gap Project Area occur within the 0.75-mile buffer. Other projects in the region also have a collective potential to impact raptor nests.

Although only eight nests were active during 1994, activity status is likely to change in subsequent years. On the basis of current use, from 126 to 2,010 acres per occupied nest could be subject to seasonal restrictions with total acreage varying with the number of active nests. For this reason, a search of construction sites active raptor nests is recommended prior to any surface disturbing activities. This could be done at the APD level. With the development of an appropriate raptor management plan, including the application of avoidance and mitigation measures imposed on all developments on federal lands, significant cumulative impacts to raptors are not expected.

3.7.4 Sage Grouse

As shown in Exhibit 3-8 of the FEIS, a total of 22 sage grouse leks occur on the GWA II analysis area. Existing disturbance to sage grouse nesting and breeding habitat has reduced the total acreage of this habitat by approximately 1,182 acres within the project area. Surface disturbance resulting from the implementation of the Proposed Action and Alternative A could disturb an estimated additional 650 and 538 acres of habitat, bringing the cumulative total to 1,832 and 1,720 acres, respectively. Under Alternative B, an estimated 434 acres of sage grouse habitat would be disturbed and bring the cumulative total to 1,616 acres.

Mariah Associates (1994) reports that 127 wells on the Creston/Blue Gap Project would occur within sage grouse nesting habitats. Other projects in the region also have a collective potential to impact sage grouse nesting habitat. However, given the implementation of standard BLM stipulations on all of these developments impacts to breeding and nesting activities would be minimized, but the proposed actions will add to the cumulative loss of nesting habitat by 434 to 650 acres. Given the mitigation and avoidance measures for sage grouse that are described in Section 4.7 of the FEIS, the actions and alternatives proposed for the GWA II analysis area project are not expected to significantly increase cumulative impacts to sage grouse.

3.7.5 Threatened and Endangered Species

For reasons stated in Sections 4.7.3.1.1 of the FEIS, no cumulative impacts to the bald eagle, peregrine falcon and whooping crane are anticipated.

Black-footed Ferret. Existing disturbance to prairie dog colonies within the project area has reduced the acreage of this habitat by approximately 97 acres. This represents 1.5 percent of the total potential habitat available to black-footed ferrets (if present). Under the Proposed Action, an estimated 39 additional acres of prairie dog colonies would be disturbed over the short term, resulting in the reduction of approximately 0.7 percent of the total available habitat associated with prairie dog colonies in the project area. As a result, the cumulative total area disturbed within prairie dog colonies would increase to 2.2 percent.

Surface disturbance resulting from the actions of Alternative A would initially disturb an estimated 31 acres of potential black-footed ferret habitat within prairie dog colonies. This

represents approximately 0.5 percent of the total acreage of prairie dog colonies within the project area and brings the cumulative total disturbance to 2.0 percent. Under Alternative B an estimated 24 acres of potential black-footed ferret habitat would be disturbed within the project area and would bring the cumulative disturbance to 1.9 percent.

Black-footed ferrets (if present) would likely be affected by the proposed level of development under either alternative. As previously mentioned, numerous sightings of ferrets have been recorded within and in proximity to the project area within the last decade (WGFD 1992b); consequently, their local presence cannot be ruled out. For this reason, surface disturbance of prairie dog colonies would not be permitted until after the completion of ferret surveys required by the FWS.

Because of the expanses of white-tailed prairie dog colonies on the GWA II analysis area and in the region surrounding it, suitable habitat for the black-footed ferret exists. Because of the high correlation between the occurrence of these colonies and previous earth-disturbing activities associated with oil and gas development in this region, it appears likely that such activities have collectively contributed to the creation of suitable habitat for the black-footed ferret. Ironically, these same human activities can impact ferrets by increasing the potential for 1) being struck by moving vehicles on existing and new roads, 2) being mistakenly shot as a prairie dog, and 3) being buried or otherwise injured if construction activities overlap active prairie dog burrows. Since all developmental activities in the region are governed by strict FWS and BLM guidelines regarding the inventory of prairie dog colonies and searches for black-footed ferrets, an impact to this species is unlikely.

Given implementation of mitigation stipulations for each of the proposed gas developments in this region, and applicable federal regulations, the potential for significant cumulative impacts to threatened and endangered species is low.

3.7.6 Candidate Species

For reasons stated in Sections 4.7.3.1.2 of the FEIS, no cumulative impacts to the white-faced ibis, Columbia sharp-tailed grouse, long-billed curlew, and black tern are anticipated.

Mountain Plover. The extent of existing disturbance within known mountain plover habitat has reduced the total acreage of this habitat by approximately 1.5 percent. Assuming uniform distribution of proposed new wells over the project area, an estimated 39, 31, and 24 acres of potential mountain plover habitat would be disturbed within the project area under the Proposed Action, Alternative A, and Alternative B, respectively. This represents a 0.7, 0.5, and 0.4 percent reduction in the total potential habitat for mountain plovers in the project area, and together with existing disturbance, raises the cumulative totals to 2.2, 2.0, and 1.9 percent under the respective alternatives of the Proposed Action, Alternative A, and Alternative B.

Potential plover habitat was quantified based on the total acreage of existing prairie dog colonies. Mountain plover may reside in additional areas outside of prairie dog colonies, such as relatively barren areas with short grass. Nevertheless, from 24 to 39 acres of mountain plover habitat would be disturbed under the various alternatives. Impacts could be prevented or greatly reduced by avoiding well placement, or greatly reducing the density of wells placed, within areas of known mountain plover habitat, and by avoiding construction during the nesting period from late April through mid-June and within areas of known mountain plover habitat. The FWS will be contacted and consultation on required action requested.

Loggerhead Shrike. The degree of existing disturbance within known loggerhead shrike habitat has reduced the amount of habitat available to this species by 53 acres or 1.3 percent. A minimum of 32, 26, and 21 acres of known loggerhead shrike habitat would be disturbed within the project area by the implementation of the Proposed Action, Alternative A, and Alternative B, respectively. This represents an additional reduction in approximately 0.8, 0.7, and 0.5 percent of known loggerhead shrike habitat under the respective alternatives and brings the cumulative total disturbance to 2.1, 2.0, and 1.8 percent respectively. Consequently, loggerhead shrike populations could be adversely affected under either alternative; however, these impacts would be prevented by avoiding construction during the nesting period from early April through mid-July and reducing or avoiding well placement within areas of known loggerhead shrike habitat. The addition of suitable native shrub species to the reclamation mix would also accelerate the re-establishment of shrike nesting habitat.

Burrowing Owl. The extent of existing disturbance within burrowing owl habitat has reduced the total acreage of this habitat by approximately 1.5 percent. Assuming uniform distribution of proposed new wells over the project area, a minimum of 39, 31, and 24 acres of potential burrowing owl habitat would be disturbed within the project area under the Proposed Action, Alternative A, and Alternative B, respectively. This represents a 0.7, 0.5, and 0.4 percent reduction in the total potential habitat for burrowing owls in the project area, and together with existing disturbance, raises the cumulative total to 2.2, 2.0, and 1.9 percent under the respective alternatives of the Proposed Action, Alternative A, and Alternative B.

The disturbance of this habitat could displace some burrowing owls into surrounding areas. Because these areas contain over 6,000 acres of prairie dog colonies which constitute prime nesting habitat of this species, such displacements are not expected to produce adverse or irretrievable impacts. In addition, Measure 7 in Section 2.3.4.2.7 of the DEIS states that construction during the critical nesting season will be restricted when an active raptor nest occurs within 0.75 mile of a proposed well location.

3.7.7 Other Wildlife

Given implementation of mitigation stipulations for each of the proposed gas developments in this region, and applicable federal regulations, the potential for significant cumulative impacts to other wildlife species is low.

3.7.8 Vehicle Collisions

The cumulative potential for vehicle collisions with wildlife is high when all of the new roads and increased traffic from the several projects in the area are considered collectively. However, with implementation of mitigation stipulations for each of these projects this potential is not expected to reach significant levels.

3.8 Fisheries

The cumulative effect of water depletion in the watersheds of the Colorado River System could result in the reduction of habitats for the Threatened, Endangered, and Candidate species that live there. According to the "Windy Gap Decision" of the FWS, any cumulative depletion in flow to the upper basin of the Colorado River System is considered to have a possible effect on the survival and recovery of these listed species. Although the flows of many tributaries in the upper basins have been modified, flow in the mainstem Green River is controlled by Flaming Gorge Dam, and the resultant impacts on fish habitat are difficult to assess. Therefore, the "Windy Gap Process" was developed to facilitate the calculation of flow depletions on a cumulative basis and the assessment of user fees to promote recovery of these species through monitoring, research, habitat manipulation, and fish culture.

Analysis of the Proposed Action and Alternatives indicates that no project-generated depletion of waters feeding or connected to Muddy Creek or the Little Snake River will occur and no increase in cumulative impacts associated with such water depletion will occur.

3.9 Recreation

The potential for the proposed project to have significant effects on recreation conditions and opportunities has been increased substantially in the GWA II project area due to the cumulative effects of past energy resource development activities as well as a number of other ongoing or proposed development projects in or near to the project area. Recent gas development associated with the GWA II infill drilling program, as well as earlier drilling and development activities within the project area, have substantially altered the recreation setting and reduced the availability of areas where recreation activities are not in some way restricted or influenced by the presence of gas production activities. In addition, the existence of several other active or proposed energy resource development projects within or immediately adjacent to the GWA II project area could cause increased disturbance of recreationists using the area. Developments associated with these other projects (i.e., Creston/Blue Gap gas project, Cheyenne Stage I and II pipelines, Uinta Basin Lateral pipeline, Hay Reservoir infill drilling, Mulligan Draw well field development, Sandstone Reservoir, Moxa Arch expansion, Carbon County UCG, and the Kennebec Green Mountain mine) limit the ability of hunters and other recreationists to relocate their activities into other relatively undisturbed areas within or near to the GWA II project area. These conditions increase the potential for users to experience relatively more crowded conditions at available recreation locations than would be the case if the proposed GWA II project was the

only major resource development activity in the area. As a result, the cumulative effects of these various projects include a greater potential for recreation displacement, crowding due to user redistribution effects, and increased user dissatisfaction with the recreation conditions that are available in the area.

3.10 Visual Resources

To date 217 wells and an additional 70+ wells have been drilled in the GWA II analysis area. The Proposed Action would add substantially to the existing level of impact as described (by more than doubling the number of well locations). Depending upon specific siting conditions; the Proposed Action could tip the level of contrast scale to Human Dominated in the I-80 viewshed. This area was mapped as a higher sensitivity environment (Foreground-Middleground--See Exhibit 3-10 in the DEIS) due to ready visual access by travelers of I-80 and on Amtrak. Other proposed actions in the vicinity include Hay Reservoir infill drilling, Uintah Basin Lateral pipeline and Mulligan Draw well field development. All three are in remote locations and do not share a common viewshed with the GWA II analysis area. Consequently completion of these three proposed actions together with the GWA II analysis area would not have a cumulative effect on the visual resource.

3.11 Cultural Resources

Disturbance and/or loss of other unidentified sites or artifacts could add to the cumulative loss of information about our heritage in the analysis area and in the region if these sites or resources are not identified and inventoried prior to disturbance. Any loss or damage to unidentified cultural or historical sites or resources associated with the proposed natural gas development project, combined with similar losses or damage due to natural gas development projects near the GWA II analysis area, could be substantial. The implementation of Class III pedestrian inventory on all proposed drill sites, access roads, and pipeline corridors would minimize the potential for cumulative impacts to cultural resources in the analysis area.

3.12 Socioeconomics

The potential for serious adverse socioeconomic impacts associated with the proposed GWA II development has been increased substantially due to the cumulative effects of numerous other development activities that are proposed or scheduled in the surrounding area. As noted in Chapter 2 of the DEIS, there are a number of other resource development and construction projects in Sweetwater and Carbon counties that will be pursued during the same time period as that proposed for the GWA II drilling and construction program; these other projects will require workforces with similar skills and experience. Some other projects that are already underway are causing problematic growth pressures in the Rock Springs area (Planning Information Corporation 1994), and increased resource development activities have contributed to a shortage of housing throughout the analysis area.

The cumulative population growth effects of the several projects that are likely to occur simultaneously in the area will tend to be considerably greater than if only one project were scheduled. Because several of the other ongoing and proposed projects are centered around Wamsutter, the levels of worker in-migration and associated increased demands for housing and public services in that community could potentially be very substantial. In addition, the reappearance of major boom growth problems in the area could result in significant social disruption effects that would otherwise not be anticipated if only the GWA II project was active in the area.

3.13 Transportation

Other major industrial development is anticipated to occur near the GWA II analysis area. A major natural gas development project is planned on the east side of the GWA II analysis area (Creston/Blue Gap Natural Gas Project). This project involves drilling and development of 200 to 330 natural gas wells on approximately 207,746 acres. Total life of the project is anticipated to be 30 to 50 years. Wyoming 789 and I-80 would be the primary means of access to the analysis area. Additionally, natural gas drilling and development is planned in the Mulligan Draw Area, located adjacent to the south side of the GWA II analysis area. This development calls for drilling approximately 45 total wells on 640 acre spacing over a period of several years. The main access to this area would be I-80, WY 789, and local county roads. Construction and operations-related traffic associated with these facilities would create cumulative effects primarily on I-80, WY 789, and Sweetwater County Road 4-23. Given that these roads are designed and maintained to withstand heavy traffic, deteriorations in levels of service are not anticipated from these cumulative impacts.

Currently, the lands adjacent to the analysis area are anticipated to experience substantial petroleum exploration and development activity over the next several years. Since the major highways providing access to the GWA II analysis area also provide access to other fields in the area, it is likely that other oil and gas drilling projects would generate cumulative transportation impacts for these major highways (I-80, WY 789). Projections of increases in traffic volumes are not available for other planned exploration and development activities. However, given that the planned exploration and development activities are all planned over several years, it is unlikely that cumulative oil and gas activities will result in cumulative impacts that would exceed the significance criteria established for this analysis.

3.14 Health and Safety

Because the probability of risk to public health and safety resulting from implementation of the Proposed Action and Alternatives A, B, and C would be low, no cumulative impacts are expected.

3.15 Noise

Continuous noise would result from ongoing construction, drilling, and gas production operations during the life of the project. Increased traffic on existing transportation system roads within the GWA II analysis area would occur, thus adding to existing traffic noise. However, given the current and anticipated low and dispersed traffic volumes, and dispersed nature of gas production operations within the GWA II analysis area, these projected increases in project-related noise would not be significant.

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SECTION 2
COMMENTS AND RESPONSES
ON THE
GREATER WAMSUTTER AREA II
DRAFT
ENVIRONMENTAL IMPACT STATEMENT

SECTION 2

COMMENTS AND RESPONSES ON THE
DRAFT ENVIRONMENTAL IMPACT STATEMENT

2.1 PUBLIC MEETING

A public meeting designed to allow area residents and others to verbally comment on the proposed project was held in Rawlins, Wyoming on February 23, 1995. The attendance record and Record of Proceedings for the public meeting are presented in 2.1.1 through 2.1.4.

Due to technical difficulties with the recording equipment, a verbatim transcript of the hearing is not available. Two of the speakers listed on the sign-up sheet, Jay Grabow, representing the Carbon County Economic Development Corporation, and Mark Kot, representing the Sweetwater County Commissioners, also provided written comments. Copies of the letters and the BLM responses are included in the written comment section.

The remaining two speakers did not provide written comments. Art Zeiger, speaking on behalf of the Carbon County Commissioners, was generally in favor of the Greater Wamsutter Area II project. J.B. Tucker, representing himself, was concerned that additional fences might impact wildlife migration and movement and was not in favor of any additional fences in the project area.

2.1.1

PUBLIC MEETING, FEBRUARY 23, 1995
GREATER WAMSUTTER AREA II
DRAFT ENVIRONMENTAL IMPACT STATEMENT

PLEASE PRINT

NAME	ADDRESS	REPRESENTING	WISH TO MAKE STATEMENT?
Art Zeiger	P.O. Box 246 Sandberg	County Commissioners	Yes
Norman Ellsper	1525 9th Street Rock Sp.	Wyo. Sp. Resources Assoc.	Yes
Doug Rowland	Box 2377 Rawlins	Hy Land	No?
Jay Grabow	P.O. Box 7, MS 3006	UPRC	NO
Mark Kot	2315 Foothill RS	UPRC	NO
Mark Kot	80 West Humea Green	Sweetwater County	Yes
Gary Holson	P.O. Box 175 Thorne WY	Gary Holson Environmental Planning	NO
Larry Hayden Wing	8308 S 8th, Laramie, WY	Hayden Wing Associates	No
J.B. Tucker	Box 33 Baird WY	Public	No
Pat Schmid	719 Miller Ct. Appleton, WI	Schmid Dist. Sec.	No

PUBLIC MEETING, FEBRUARY 23, 1995
GREATER WAMSUTTER AREA II
DRAFT ENVIRONMENTAL IMPACT STATEMENT

PLEASE PRINT

NAME	ADDRESS	REPRESENTING	WISH TO MAKE STATEMENT?
JAN RUTTY	P.O. Box 800 Denver, CO 80201	Amoco	No
Kristen Holden	P.O. Box 130, Granger WY 82034	Amoco	No
Doug Miller	P.O. Box 157 Wamsutter	"	"
Bob Tigmer	104 E. Kendrick St.	ME	NO
Joan Lawrence	Box 942	ME	NO
Elmer	Box 755	ITC	No
Mr. B. Furinton	Lawlins	BLM	No
Jim Webb	"	B.L.M.	No
JAY GRABOW	820 W. SPRUCE	SCDC Priv. Bus.	YES
Larry Jackson	Rawlins	DCM	NO

2.1.2

PUBLIC MEETING, FEBRUARY 23, 1995
GREATER WAMSUTTER AREA II
DRAFT ENVIRONMENTAL IMPACT STATEMENT

----- PLEASE PRINT -----

NAME	ADDRESS	REPRESENTING	WISH TO MAKE STATEMENT?
Henry Hewitt	Box 200 Rawlins, WY	Wise Agency	
Clare Miller		BLM - Rawlins	

PUBLIC MEETING, FEBRUARY 23, 1995
GREATER WAMSUTTER AREA II
DRAFT ENVIRONMENTAL IMPACT STATEMENT

----- PLEASE PRINT -----

NAME	ADDRESS	REPRESENTING	WISH TO MAKE STATEMENT?
Bill Moller		BLM	

2.1.3

GREATER WAMSUTTER AREA II
NATURAL GAS DEVELOPMENT PROJECT
ENVIRONMENTAL IMPACT STATEMENT
PUBLIC HEARING
February 23, 1995

RECORD OF PROCEEDINGS

1 **HEARING OFFICER:** The public meeting scheduled for tonight
2 will now come to order.

3 Good evening. I'm Beverly Derringer, Realty Specialist
4 for the Great Divide Resource Area, Rawlins District, Bureau
5 of Land Management. I will be the hearings officer tonight.
6 The purpose of this hearing is to provide the public an
7 opportunity to submit for the record oral testimony on the
8 recently completed draft environmental impact statement on the
9 Greater Wamsutter Area II Natural Gas Development Project
10 located north and south of Wamsutter, Wyoming. This EIS was
11 prepared by Gary Holsan Environmental Planning of Thayne,
12 Wyoming under the direction of the BLM and was financed by
13 Union Pacific Resources Company and others.

14 All comments on the draft environmental impact statement,
15 both those received tonight and those in writing, will be
16 considered in preparing the final environmental impact
17 statement.

18 Written comments will be received by the Bureau through
19 March '8, 1995, and should be sent to the Bureau of Land

20 Management, Attention: John Spehar, Environmental Impact
21 Statement Team Leader, Post Office Box 670, Rawlins, Wyoming
22 82301.

23 So that we may carry out the purpose of this hearing
24 tonight in an orderly manner, I am establishing the following
25 ground rules:

26 Those who have registered to present formal comments will
27 be called upon by the hearing officer to come forward and
28 speak from the podium so everyone present can hear. Before
29 commencing your testimony, please state your name, your place
30 of residence, and whom you represent.

31 Those in the audience who have not registered but wish to
32 testify may do so in a like manner, beginning after the last
33 registered speaker. Please provide a written copy of your
34 testimony and leave it with me after you have testified.

35 The purpose of this public hearing is to secure formal
36 oral testimony from the public. This is not an open discussion
37 meeting. It is not a question and answer session, nor is it a
38 forum for debate. However, if you need clarification of some
39 item in the EIS, we will be happy to answer.

40 I would now like to briefly summarize the Greater
41 Wamsutter Area II Natural Gas Development project and this
42 environmental impact statement. Immediately after the summary,
43 public testimony will begin.

44 If you have any questions regarding any of the
45 information I just presented, I will be available immediately
46 after the hearing as will Gary Holsan from Gary Holsan

2.1.4

47 Environmental Planning and representatives from Union Pacific
48 Resources Company.

49 **HEARING OFFICER:** I will now recognize our first
50 registered speaker.

51 **HEARING OFFICER:** Thank you. That is the last registered
52 speaker. Are there any members of the audience who wish to
53 introduce testimony for the record this evening?

54 If there are no further speakers, I declare this public
55 meeting closed as of 8:00 p.m. Thank you very much for
56 attending.

RESPONSES TO COMMENTS - PUBLIC MEETING**Comment 1: Jay Grabow, Carbon County Economic Development Corporation**

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Comment 2: Mark Kot, Sweetwater County Commissioners

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Comment 3: Art Zeiger, Carbon County Commissioners

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Comment 4: J. B. Tucker

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: There are no new fences proposed in the GWAI project area as a result of the proposed action or alternatives other than those specifically identified to restrict wildlife and livestock access to reserve pits. These fences would be built around reserve pits and would not restrict wildlife movement through the project area.

GREATER WAMSUTTER AREA II FINAL EIS

2.2 WRITTEN COMMENTS AND RESPONSES TO THE GREATER WAMSUTTER AREA II DRAFT EIS.

Twenty-one comment letters were received on the DEIS (Table 2.2-1). These comment letters and Bureau of Land Management responses are presented as follows.

Table 2.2-1. Comments Received on the DEIS for the Greater Wamsutter Area II Gas Development Project, Carbon and Sweetwater Counties, Wyoming, 1995.

COMMENTOR	CHAPTER LOCATION
State of Wyoming Oil and Gas Conservation Commission	2.2.1
Department of the Army - Corps of Engineers	2.2.2
Sweetwater Board of County Commissioners	2.2.3
State of Wyoming Oil and Gas Conservation Commission	2.2.4
Jay C. Grabow	2.2.5
U.S. Environmental Protection Agency	2.2.6
State of Wyoming Oil and Gas Conservation Commission	2.2.7
State of Wyoming Department of Environmental Quality	2.2.8
State of Wyoming Division of Parks and Cultural Resources	2.2.9
Amoco Production Company	2.2.10
Petroleum Association of Wyoming	2.2.11
USDI - Fish and Wildlife Service	2.2.12
Wyoming State Geologic Survey	2.2.13
Wyoming State Land and Farm Loan Office	2.2.14
Wyoming Game and Fish Department	2.2.15
Marathon Oil Company	2.2.16
Meridian Oil Inc.	2.2.17
Williams Field Services	2.2.18
F. Earline Hittel	2.2.19
Randall Taylor	2.2.20
Independent Petroleum Association of Mountain States	2.2.21

2.2.1 Letter from State of Wyoming - Oil and Gas Conservation Commission

RESPONSE

State of Wyoming
Oil and Gas Conservation Commission

GOVERNOR MICK SULLIVAN CHAIRMAN
 COMMISSIONERS
 HOWARD M. SCHMINAR GARY B. GLASS BRIE CROUCH DOUG DOW
 STATE OIL AND GAS SUPERVISOR
 DONALD B. BASKO

February 8, 1995

Mr. John Spehar
 Bureau of Land Management
 Rawlins District Office
 P. O. Box 670
 Rawlins, WY 82301



RE: Draft E.I.S. Union Pacific Resources
 Company Greater Wamsutter Area II Natural
 Gas Development Project. State Identifier
 92-059

Dear Mr. Spehar:

I am in receipt of a copy of the above noted E.I.S. The Wamsutter area has produced gas since 1958 and has enjoyed intermittent development until the present. As you know, there are now several dozen fields in the trend from Township 14 North through Township 24 North and from Range 90 West to Range 104 West. That is not to say that all townships have developed fields but they are scattered throughout the area I described. For your information and convenience, I have enclosed a copy of the Wyoming Geologic Survey Greater Green River Basin map, Series No. 36.

The U.P.R.C. project will add a maximum of 750 wells at 300 locations. It is my view that this addition will not impact an area that is already a significant gas province. Wyoming's gross gas production continues to increase annually topping 1 T.C.F. several years ago. Our reserves also continue to climb while nationally the reserves are declining. Our current reserves to production ratio has fallen to a 25 year low at less than nine years. This development will help with that troubling situation and is necessary to ensure our continued independence where gas is concerned. It could also displace some of the Canadian gas we currently import.

It is therefore recommended that U.P.R.C. be permitted to proceed with this project at the earliest possible date.

Very truly yours,

Donald B. Basko,
 State Oil and Gas Supervisor

DBB/d1

General Response: Thank you for taking the time to review the DEIS and providing your comments.

2.2.2 Letter from Department of the Army - Corps of Engineers

RESPONSE



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
215 NORTH 17TH STREET
OMAHA, NEBRASKA 68102-4978

February 7, 1995

REPLY TO
ATTENTION OF

Cheyenne Regulatory Office
2232 Dell Range Blvd., Suite 210
Cheyenne, Wyoming 82009

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P.O. Box 670
Rawlins, Wyoming 82301

Dear Mr. Spehar:

This is in response to your agency's January 12, 1995 request, received January 26, 1995, for comments on the Union Pacific Resources Company's Greater Wamsutter Area II Natural Gas Development Project EIS.

A review of the EIS indicates that potential exists for impacts to occur in waters of the U.S. (including wetlands) which are subject to regulation under Section 404 of the Clean Water Act. It appears that the EIS does not fulfill the requirements of Section 404 of the Clean Water Act since it does not adequately identify all impacts to aquatic resources. Although the EIS may be correct in assuming that access and pipeline crossings can be authorized by nationwide permits, well pad placement in conjunction with these impacts may trigger the need for an individual permit. If this is the case, use of mitigation measures to reduce impacts to a permissible level is not appropriate under the Clean Water Act. Additionally, a site specific alternatives analysis may find that one of the smaller alternatives is a less damaging, practicable alternative which would preclude the authorization of the proposed action.

It is not appropriate to place well pads in wetlands and other waters of the U.S. Therefore, the EIS should emphatically state that no well pads will be placed in wetlands and crossings will be confined to areas that do not contain special aquatic sites.

The mitigation requirements in waters of the U.S. would also have to be more fully explored to pass regulatory standards (i.e. level of detail) for an individual permit review. Cumulative impacts will need



General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: As discussed with the Corps of Engineers on April 4, 1995, the DEIS is based on a conceptual-level of analysis and is programmatic. The operators are not able to identify specific project facility locations for a site-specific impact analysis to be accomplished. As discussed on pages 3-41 and 3-42 of the DEIS as well as in ECOTONE (1995a), the "Routine On-site Methods" per the 1987 *Corps of Engineers Wetlands Delineation Manual* was used to identify and delineate jurisdictional wetlands in the field. USFWS NWI maps were utilized as a first approximation, but the field investigations verified the occurrence/absence and location/distribution of such areas shown on the NWI maps, and Exhibit 3-3 on page 3-27 of the DEIS and Map #1 of ECOTONE (1995a). As discussed on page 3-42 of the DEIS, field investigations accomplished for the EIS, Exhibit 3-3, and Map #1 are not accurate enough or of sufficient detail for CWA Section 404 (b)(1) guidelines compliance evaluation or Section 404 permitting. Per page 4-39 and Measure 4 on page 2-40 of the DEIS, all project facilities would be located out of wetlands except for roads and pipelines that may not be able to practicably avoid all wetland areas. The operators have committed to locate well sites and production facilities out of wetlands. Pipelines and roads that could not practicably avoid such areas would be authorized under Nationwide Permits Nos. 12 and 14, respectively. Impact avoidance is the highest priority of mitigation.

The GIS database will be manipulated to determine the areas of wetlands that have been impacted by past and current activities (as of May 1994) within the GWA II analysis area. Approximately 115 acres of wetlands have been adversely affected by past and present activities in the GWA II analysis area.

Impacts to other aspects of aquatic habitats are discussed in the Fisheries sections of the DEIS (Sections 3.8 and 4.8).

2.2.2 Letter from Department of the Army - Corps of Engineers, Continued

RESPONSE

-2-

1, Cont'd.

to be assessed to determine overall aquatic resource losses to occur from the proposal, even if they are temporary. The EIS does not indicate if there has been any historical loss of aquatic resources in the watersheds to be impacted by the proposal although some discussion is included on page 4-42 of historic state losses. Further, impacts to aquatic resources associated with existing operations were not discussed.

To ensure impacts to aquatic resources are minimized and to assist in our determination as to the type of authorization needed under Section 404 of the Clean Water Act, it is required that all well pad, pipeline, and road crossing locations be identified upfront before any activities commence in jurisdictional areas.

If you have any questions concerning this matter, please contact me at (307) 772-2300. Your file number is 199540015.

Sincerely,


Chandler G. Peter
Project Manager
Cheyenne Regulatory Office

Response 1, Continued.

Per the programmatic or conceptual-level analysis identified in the DEIS, all facilities would be field reviewed by the BLM during the APD/ROW authorization process. During this time, the operators and/or the BLM would determine the presence/absence of wetlands in the vicinity of a facility and if present, determine the feasibility of avoiding and/or minimizing adverse impacts. If wetlands could not be totally avoided, the operators would be required to coordinate with the COE before any construction is approved or started. A similar process would occur for facilities on other state and private lands. The operators would be responsible to ensure that the facilities are in full compliance with the CWA.

2.2.3 Letter from Sweetwater Board of County Commissioners**RESPONSE****SWEETWATER COUNTY
BOARD OF COUNTY COMMISSIONERS**

80 West Flaming Gorge Way
P O Box 730
Green River, Wyoming 82935

PHONE 307-872-6400
FAX 307-872-6337

PHONE 307-872-6331
PHONE 307-872-6332

February 21, 1995

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P. O. Box 670
Rawlins, WY 82301

Dear Mr. Spehar:

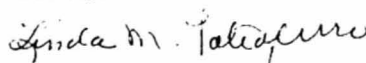
The Board of County Commissioners of Sweetwater County strongly supports the development of the Union Pacific Resources Company Greater Wamsutter Area II Natural Gas Development Project in eastern Sweetwater County.

Continued exploration and development of petroleum and mineral resources within Sweetwater County sustains the vitality of our county's economy, providing jobs as well as tax revenues which support public services.

We believe in the importance of this project; however, we strongly encourage the production companies involved to obtain all necessary federal, state and county permits and to develop the project in an environmentally-responsible manner. The Sweetwater County Land Use Plan encourages development to occur in a manner that considers cumulative social as well as environmental impacts.

We appreciate the opportunity to express our support for this project and encourage Union Pacific Resources and other oil and gas development companies to pursue other projects of this nature.

Sincerely,



Linda M. Taliaferro, Chairman
Board of County Commissioners

JOHN E. RADOSEVICH
307-362-5867

LINDA M. TALIAFERRO
Chairman
307-875-3312
307-273-5714

CARL MALDONADO
307-875-3809

General Response: Thank you for taking the time to review the DEIS and providing your comments.

General Response

GREATER WAMSUTTER AREA II FINAL EIS

73

2.2.4 Letter from State of Wyoming - Oil and Gas Conservation Commission

State of Wyoming
Oil and Gas Conservation Commission

GOVERNOR MIKE SULLIVAN CHAIRMAN
 COMMISSIONERS
 HOWARD M. SCHINAR GARY B. GLASS BILL CROUCH DOUG DOW
 STATE OIL AND GAS SUPERVISOR
 DONALD B. BASKO

February 23, 1995

John Spehar
 Bureau of Land Management
 Rawlins District Office
 P. O. Box 670
 Rawlins, Wyoming 82301

Re: Draft Environmental Impact Statement, Union Pacific
 Resources Company, Greater Wamsutter Area II, Natural
 Gas Development Project

Dear Mr. Spehar:

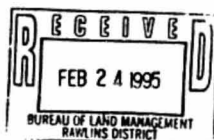
On February 8, 1995, our office received a copy of the referenced document. I would appreciate receiving clarification, or further information about the following paragraph which is found on page 3-38 of the EIS:

"Concerns have been raised for several gas field projects in southwest Wyoming regarding groundwater quality degradation due to the piercing of confining layers and vertical and horizontal migration and mixing of water of variable qualities. Data suggesting this is a current problem in the GWA II analysis area are not available. Improperly completed injection wells could be a potential source of communication."

At your early convenience, please advise me of the field names and of the source of data to support the statement about the injection wells. Thanks in advance.

Very truly yours,

Donald B. Basko
 Donald B. Basko
 State Oil & Gas Supervisor

**RESPONSE**

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: As discussed on page 4-32 and 4-33 of the DEIS, groundwater contamination could occur from a number of sources due to well drilling, completion, and operation. Technology cannot reduce the risk of contamination to zero. There will always be a chance for such contamination, and impact that could preclude the use of such water in the future. Well completion per "On-shore Oil and Gas Order No. 2" would go a long way towards reducing the risk of such contamination. Similarly, use of cathodic protection in areas particularly prone to corrosion would reduce such risks. According to John Pecor, Dennis Stenger, and Gary McNaughton of the BLM, Rock Springs District, potential groundwater contamination had been preliminarily identified in the Granger, Wyoming area. A response from BLM to the WOGCC was provided by letter on March 3, 1995.

2.2.5 Letter from Jay C. Grabow**RESPONSE**

March 2, 1995

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P. O. Box 670
Rawlins, WY 82301

Re: EIS Greater Wamsutter Area II

Dear John:

Please accept this letter as written support of my verbal comments made at the January 23, 1995, EIS hearing at the BLM office on Murray Street in Rawlins.

The Carbon County Economic Development Corporation has reviewed the draft EIS and offer the following comments in support of the full development of this project:

Environmental issues have been adequately addressed. In that regard, we feel that any negative impacts would be very minor in relationship to the potential positive economic benefits coming from this project. The citizens and businesses of Carbon County continue to try to survive in a weak economy which does not support adequate salaries or jobs to retain our young people in the area.

We feel that this type development helps establish a viable economy within which the people of Carbon County can continue to make a living and raise their families.

Respectfully submitted,

Carbon County Economic Development Corporation


Jay C. Grabow
Member

c/o 816 W. Spruce
Rawlins, WY 82301
307-324-4808
CCEDC office phone: 307-328-2659

General Response: Thank you for taking the time to review the DEIS and providing your comments.

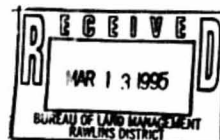
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2.2.6 Letter from U.S. Environmental Protection Agency



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VIII
999 18th STREET - SUITE 500
DENVER, COLORADO 80202-2468

MAR 10 1995



Ref: 8WM-EA

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P.O. Box 670
Rawlins, Wyoming 82301

RE: Draft Environmental Impact Statement
Union Pacific Resources Company
Greater Wamsutter Area II Natural Gas
Development

Dear Mr. Spehar:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA), Region VIII office of the Environmental Protection Agency (EPA) has reviewed the Draft Environmental Impact Statement for the above referenced project. The following comments are offered for your consideration in preparing the Final EIS.

Potential air impacts of the proposal seem to be adequately addressed. This includes compliance with the NAAQS, PSD increments and visibility.

Comments or questions resulting from our review of the water and production aspects of the DEIS are:

1. Page 2-29, Paragraph 3

The narrative indicates that the produced water is "generally considered to be condensed water vapor of low total dissolved solids (TDS) content." It is not clear what this statement actually means. Some data on the actual water quality of fluids from active production wells already in the area should be utilized to provide actual TDS values. EPA would also recommend that the estimate of the quantity of produced water be checked by accessing Wyoming Oil and Gas Conservation Commission records.

2. Page 2-29, Paragraph 4

The amount of incomplete combustion products from flaring, especially CO and NOX, should be quantified with some range.

RESPONSE

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: This statement means that water produced with natural gas is generally considered to be water vapor. Water that condenses from vapor is free of all dissolved solids, as such chemical constituents are left behind when water changes from liquid to vapor. Any minor quantities of TDS left in condensed water would come from material in well casing, pipes, holding tanks, etc. TDS picked up from such materials would be highly variable and dependent on the specific circumstances that cannot be predicted. Estimated volumes of water produced with gas is less than one barrel of water per day per well. Again as indicated, quantities of TDS would likely be very small.

Response 2: The total pollutant emission rates from the construction, rig-up, drilling, completion, testing, and flaring at one well site, including CO and NO_x, are shown in Table 4-2 of the DEIS. Flaring during drilling operations is typically the result of upset or emergency conditions. Due to the wide variety of circumstances that may be involved (i.e., equipment operations, gas composition, etc.), it is impossible to quantify, with any accuracy, the emissions associated with emergency or upset flaring. However, emissions attributable to permitted flaring actions by GWA II operators will be quantified on a case-by-case basis in the permit application. Total emission rates from permitted flaring would fall well below threshold levels shown in Table 4-2 since flaring would be permitted on a single-well site.



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2.2.6 U.S. Environmental Protection Agency, Continued

RESPONSE

2

2, Cont'd.

The CO₂ content of the gas in this area may be higher than in most areas. A more definitive estimate of flaring load seems warranted.

3. Page 2-29, Paragraph 5

The discussion regarding plugging is too general. What criteria will be used to determine the actual plugging program for a specific well? Will all underground sources of drinking water (USDW) be isolated? What is the relationship between the BLM and the Wyoming Oil and Gas Conservation Commission in the plugging plan approval process? Uncemented casing should be perforated if a plug is being set in the casing at that point. The narrative should have a figure showing the basic plugging plan for the area similar to that shown on the production well figures.

4. Page 2-25, Figure 2-11

The figure is incorrect. The top of cement (TOC) is shown at approximately 8300 feet. The TOC should be shown at approximately 5950 feet according to the note in the figure. All figures should be corrected to show TOC above the Lance formation.

5. Page 2-32, Paragraph 2

The use of the shot hole dynamite technique for geophysics will have a more significant impact than other methods. Is it possible to estimate how many such holes might be needed in the limited area? A description of a typical shot hole for this area should be included. (Show typical construction and geological units which may be penetrated.)

6. Page 2-38, Measure 11

What are the criteria for determining if a synthetic liner is needed?

7. Page 2-37, Section 2.3.4.2.4

The use of an approved plugging plan for abandoning wells should be included as a water resource mitigation measure.

8. Page 3-38, Section 3.4.3.2

The last paragraph indicates that concerns have been raised about ground water degradation in several gas fields in Southwestern Wyoming. The fields should be identified. The

Response 3: Plugging of a well is accomplished in accordance with State of Wyoming and BLM Rules and Regulations by placing cement plugs that are at least 100 feet in length over openhole and permeable formations; at least every 2500 feet if porous and permeable formations are not encountered; over the "stub" of the casing left in the wellbore; in the base of the surfacing casing; and any other depth required by the authorizing agency. Cast iron bridge plugs set inside casing will be capped with at least two sacks of cement. Open perforations in casing are often required to be squeezed with cement as required after a case by case evaluation. In plugging horizontal wells, a continuous cement plug shall be placed from at least one hundred feet into the lateral back to one hundred feet into the vertical portion of the wellbore, or as approved otherwise by the BLM or State of Wyoming Oil and Gas Conservation Commission.

Response 4: True. The figure is incorrect. It should show cement to the top of the Lance Formation.

Response 5: Section 2.3.3.4 of the DEIS (Production Operations) provides a discussion of proposed geophysical operations within the GWA II. The discussion states that data acquisition from previous seismic operations would be utilized in the expanded drilling and production operations. Additional data acquisition would be gathered using vibrators, primarily for economic and environmental reasons. Shot-hole dynamite may be used if field conditions, other limitations, or new acquisition criteria require such an operation. Because of the uncertainties associated with proposed drilling such as economic considerations and available seismic information, it is currently not possible to estimate the seismic plans of operators within the GWA II and subsequently, how many shot holes that might be needed within the GWA II in the future. Geophysical operations within the GWA II would require permit approval from the BLM. The permit application would include all project components, including the energy source and shot-hole layout, and any mitigation measures necessary to reduce or eliminate impacts to other resources.

Responses 6, 7, and 8 are on the following page.

2.2.6 Letter from U.S. Environmental Protection Agency, Continued	RESPONSE
<p style="text-align: center;">3</p> <p>8, Cont'd. narrative indicates that improperly completed injection wells could be a potential source of contamination. The basis for this statement should be explained and referenced. Improperly completed production wells or improperly abandoned dry holes would be as likely a cause, especially since there are many more production/dry holes than injection wells. What are the pressure heads in the various formations overlying the production zone? This information is relevant in determining the potential for fluid movement between uncemented water bearing zones.</p> <p>9. Page 3-32, Section 3.4.3.1</p> <p>9 This section should include a brief description of the formations which are presently receiving wastes via disposal wells in the area. This should include a summary table with locations, depths, construction details and volume of waste.</p> <p>10. Page 4-32, Last Paragraph</p> <p>10 This section indicates that (depending on location) most of the aquifer below 1500 feet contains most of the ground water in excess of 10,000 mg/liter TDS (not a USDW). This statement is not supported by the typical wellbore diagram on page 2-25 which indicates that the Lance formation, which contains water with a TDS less than 5,000 mg/liter, is located at a depth of 6000 feet. This section needs expansion to provide a clear picture of conditions across the area.</p> <p>11 The document frequently uses the broad terms "should" and "could". Readers would have more confidence in the analysis and resulting decision if more decisive terms such as shall, would, and will were used. Disclosure of environmental effects would be better due to the increased certainty of the information.</p> <p>12 The analysis does a good job of disclosing planned production and related development by alternative. A discussion of well density and quantity compared to ultimate quantity of gas recovery would be useful. Can fewer wells in any alternative eventually extract the basin's gas resources? How much longer would the area need to be occupied/impacted if fewer wells are involved? Would it be best to go with high density patterns to retrieve gas for shorter duration or occupy the basin with fewer wells for a longer duration? What discretion does the BLM and State of Wyoming have in spacing variances? This information would be helpful in examining cumulative impacts.</p>	<p>Response 6: Section 2.3.2.2 of the DEIS (Well Pad Construction) describes when a reserve pit would be lined by an operator within Wamsutter. Reserve pits requiring lining are those in close proximity to the Green River or Colorado River drainage systems or other sensitive environments such as shallow groundwater, groundwater recharge areas, or "critical areas" (as defined by the WOGCC). Reserve pits would also be lined in areas with high potential for contact between pit contents and surface water or shallow groundwater or other types of water supplies. On-site inspections are conducted by the BLM to ensure proper placement and use of pits.</p> <p>Response 7: An additional statement has been added to Measure 10, page 2-38 of the EIS stating "an approved plugging plan will be implemented when the oil and/or gas well is abandoned." This will help mitigate any potential surface problems with possible discharges of produced water and/or oil (condensate).</p> <p>Response 8: Contaminated groundwater has not been identified as a problem within the GWA II. All wells though, whether injection, dry, production, etc., have the <i>potential</i> to contaminate groundwater. See Response 1 to WOGCC letter No. 2.2.4. Minimal data is available on pressure heads of confined aquifers at various depths.</p> <p>Two injection wells are currently in use in the vicinity of the GWA II. These are the Table Rock Unit well no. 19 operated by Texaco, Inc. and located in the SESE of Sec. 35, T. 19 N., R. 98 W., and the Champlin 337 Amoco E No. 1 well, operated by Amoco and located in the SW of Sec. 17, T. 19 N., R. 93 W. Both wells are on private lands and have been granted Underground Injection Control (UIC) permits by the State of Wyoming as allowed by EPA. At the Table Rock well, produced water is injected into the Fox Hills and Erickson Formations. The original permit allowed disposal of a maximum of 3,000 barrels of produced water per day.</p> <p>Responses 9, 10, 11, and 12 are on the following page.</p>

2.2.6 Letter from U.S. Environmental Protection Agency, Continued

RESPONSE

4

13 Projections of disturbance were based on a 5 acre per well basis. Is this large of an area really needed or is it allowed for the convenience of the operators? The industry often drills on much smaller pads if terrain features preclude "normal" pad construction. With the recent emphasis on ecosystem management and biological diversity, it might be time for a fresh look at minimum operating standards and practices. It's likely that significant acreage could be excluded from the affected area without taking away an operators ability to explore and develop their lease. For example, reducing pads from 5 to 4 acres under the preferred alternative would eliminate 300 acres of disturbance or nearly half a square mile. The analysis seems to accept that traditional pad construction methods are appropriate and no other options will be studied since the traditional pad design has been utilized almost exclusively in the past (2.3.2.1 Well Pad Design, Pg.2-4). That is not a strong argument to allow environmental impacts if other options exist which would be more sensitive to the environment while allowing access to gas reserves.

14 Item 1.5.3 on page 1-12 says that leases will be issued with the necessary restrictions to protect resources. A discussion of what the restrictions might be, and when and how they become necessary would be useful.

15 Item 2.3.4 on page 2-32 speaks in terms of operators proposals and not obligations. The analysis would be strengthened if there was more certainty in what is expected of operators during mitigation. The section also indicates that some mitigation measures and design features may be waived when deemed appropriate. A discussion of what constitutes appropriate would be helpful.

16 Item 2.3.4.2.5, measure 5, page 2-41 indicates that BLM directives would call for minor adjustments to the location of project facilities to avoid plant species of concern and/or their habitat. The word "minor" should be changed to "necessary".

17 Item 2.3.4.2.14, Hazardous Materials, page 2-46 indicates that operators "plan to design" and "plan to avoid". The mitigation discussion should show how they would design and would avoid. What resources does the BLM have in place to monitor operator's Hazard Communication Programs and hazardous waste handling. EPA is concerned that analysis of effects and resulting decisions may rely too heavily on mitigation which may not be implemented due to future resource and budgetary limitations.

Responses on next page.

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Response 9: There is one Class II approved salt water disposal site being used by Wamsutter operators at this time. This well is used for disposal of produced water from active wells in the Wamsutter Area. The formation being used for disposal is the Fort Union. Monthly volumes of water produced and disposed of are reported to the WOGCC and Mineral Management Service (MMS).

Response 10: Wording of the "Onshore Oil and Gas Order No. 2" cannot be changed to accommodate the GWA II project. However, operators are required to complete and plug wells in compliance with this order. Exhibit 2-11 shows UPRC's proposed completed wellbore. This is a conceptual exhibit. The occurrence, depth, and quality of groundwater is highly variable across the project area (see Table 3-10). A specific well completion program will be developed for each well in compliance with Order No. 2 that takes the specific groundwater conditions encountered during drilling into consideration.

Response 11: The draft EIS was prepared by a team of preparers and personal preference for the use of the terms "could" "would" "should" "shall" was not always corrected during consistency reviews. This document is only a disclosure of environmental consequences and standard, project-specific, and site-specific mitigation measures. The Record of Decision will contain clear and precise language in identifying the approved development.

Response 12: The proposed GWA II drilling program is based on the current understanding of reservoir characteristics (i.e., geology, flow data from existing producers, expected recovery factors, and economics). Based on this information, a development level of 2 wells per section is currently deemed appropriate for most of the GWA II. Some areas with below average recovery of gas reserves may justify a greater well density per section. These areas are presently not defined; increasing density beyond 2 wells per section would depend not only on reservoir and recovery considerations, but also on gas prices, well costs, and economics. GWA II operators do not presently feel that this option is likely on a field-wide basis.

Because of factors described above, disclosing additional information on future plans on well density, gas resources, gas recovery, and spacing variances within the Wamsutter area is difficult to provide. Many of the

2.2.6 U.S. Environmental Protection Agency, Continued

RESPONSE

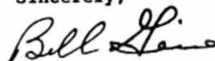
No Response

5

Based on the procedures EPA uses to evaluate the adequacy of the information in the EIS and the environmental impacts of the proposed action and alternatives, the Draft EIS for the Union Pacific Resources Company Greater Wamsutter Area II Natural Gas Development Project will be listed in the Federal Register as category EC-2 (Environmental Concerns, Insufficient Information). This category indicates that EPA has identified areas of potential impacts which should be avoided in order to fully protect the environment.

The EPA appreciates the opportunity to review and comment on the Draft EIS. If you have any questions, please contact Paul Momper at (303) 293-1695.

Sincerely,



J. William Geise, Jr., Acting Chief
Environmental Assessment Branch
Water Management Division

Response 16 and 17 on following page

Response 12, Continued

development wells in Wamsutter are defined as "tight gas sands" and are marginal prospects from an economic standpoint. If experimental drilling programs in marginal areas are not successful technically and economically, Wamsutter operators will not continue to pursue development of these properties.

Response 13: The average well site disturbance was estimated to be five acres to construct the typical 3.67-acre (400 feet by 400 feet) drill pad proposed by UPRC and other operators. The five acre disturbance estimate also included cut-and-fill slopes associated with drill pad construction and other ancillary facilities such as topsoil storage areas. GWA II operators are currently evaluating more efficient drilling methods that will not only economize the drilling process but reduce the size of disturbed areas.

Response 14: Please refer to Appendix A. Standard Mitigation Guidelines. Similar restrictions are added to lease parcels prior to leasing. In addition, site specific environmental analysis is completed for individual projects on the lease. This results in specific restrictions to help protect natural resources on or near the proposed project site.

Response 15: The draft EIS assessed the environmental consequences of the proposed action and alternatives as if all stipulations and mitigation measures were applied where appropriate and operator compliance occurred. Those actions approved through the Record of Decision and Authorized through the site-specific permitting and environmental assessment process will be carried out on federal lands. The BLM construction inspection and compliance procedures ensure that field activities are completed as authorized.

Section 2.3.4. states that mitigation measures and design features may be waived on a case-by case basis when deemed appropriate by the BLM. This determination would be made only after a thorough, site-specific analysis determined that the resource or land use for which the measure was put in place is not present or would not be significantly impacted.

See Response 5 to Letter No. 2.2.15 (WGFD).

2.2.6 Letter from U.S. Environmental Protection Agency, Continued	RESPONSE
	<p>Response 16: Replacement of "minor" with "necessary" would better protect the resource. This wording change is made in the Errata.</p> <p>Response 17: Appendix D, page 13 explains the management policy and procedures that the operators will follow in the event of a hazardous material release. The BLM will verify that the operators have written Hazard Communication Plans and field personnel will check to see that plans and MSDSs are kept at the workplace. Spot checks with employees to verify the existence and location of Hazard Communication Plans will ensure that plans are available in an emergency.</p> <p>81</p>

2.2.7 Letter from State of Wyoming - Oil and Gas Conservation Commission

RESPONSE

**State of Wyoming
Oil and Gas Conservation Commission**

GOVERNOR MIKE SULLIVAN CHAIRMAN
COMMISSIONERS
HOWARD M. SCHMIDT GARY B. GLASS BILL CROUCH DOUG COON
STATE OIL AND GAS SUPERVISOR
DONALD B. BASSO

March 14, 1995



John Spehar
Bureau of Land Management
Rawlins District Office
P. O. Box 670
Rawlins, Wyoming 82301

Re: Draft Environmental Impact Statement, Union Pacific
Resources Company, Greater Wamsutter Area II, Natural
Gas Development Project

Dear Mr. Spehar:

Based on the response I received from Gary Holsan Environmental Planning, I strongly suggest you amend the statements made in the last paragraph of Page 3-38 of the referenced EIS. If the vague reference that "Concerns have been raised for several gas field projects in southwest Wyoming....." has to be made, the Granger area study needs to be specifically identified as does the resulting effort to address the problem. Southwestern Wyoming enjoys the benefit of a great deal of development and this identifies all the fields as having problems. If correct information about the specific concerns cannot be added, take the whole thing out.

1 For the Greater Wamsutter Area, the statement that "Improperly completed injection wells could be a potential source of contamination." is completely absurd. The unit has only a single disposal well operated by Amoco Production in the C SW 1/4 Sec. 17, T.19N, R.93W. That well has been approved under the EPA's Underground Injection Control Program rules, and is monitored, inspected, and undergoes casing integrity tests under the Commission's jurisdiction. If Mr. Holsan has information that the completion or mechanical condition of the well is making it a source of contamination, I want to be given that information. Our files show no other injection wells in any of the lands identified on Exhibit 1-4 of the draft EIS. If Mr. Holsan knows of injection wells other than Amoco's, I'd want to be apprised of them.

Further, that "Well completion must be accomplished in compliance with 'OnShore Oil and Gas Order No. 2'" is not true of wells on fee, state or patented lands within the draft EIS area. The Oil and Gas Commission has rules which define fresh and potable water and which

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: Please see response to WOGCC letter No. 2.2.4 and EPA letter No. 2.2.6 Response Numbers 8 and 10.

2.2.7 Letter from State of WY - Oil and Gas Conservation Commission, Continued**RESPONSE**

Basko/Spehar
3-14-95, p.2

1, Cont'd.

provide for proper well completion on lands not under jurisdiction of the Bureau of Land Management. There are numerous other rules under the UIC program which provide protection to fresh and potable water from injection and disposal wells, and production wells adjacent to them under this agency's UIC program.

The statements in the draft EIS were brought to my attention by the Environmental Protection Agency. I want correct information about our regulatory efforts to be provided to reviewers of the EIS, not cloudy allegations and generalities. If there really are specific problems, identify them and I'll take the appropriate action.

Very truly yours,



Donald B. Basko
State Oil and Gas Supervisor

DBB:jn

2.2.8 Letter from State of Wyoming - Department of Environmental Quality

RESPONSE



JIM GERINGER
GOVERNOR

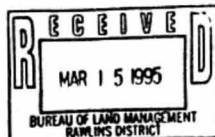
Department of Environmental Quality

Herschler Building • 122 West 25th Street • Cheyenne, Wyoming 82002

ADMINISTRATION	ABANDONED MINES	AIR QUALITY	INDUSTRIAL SITING	LAND QUALITY	SOLID & HAZARDOUS WASTE	WATER QUALITY
(307) 777-7758 FAX 777-7882	(307) 777-8145 FAX 834-0798	(307) 777-7381 FAX 777-7882	(307) 777-7388 FAX 777-6937	(307) 777-7758 FAX 834-0798	(307) 777-7752 FAX 777-5873	(307) 777-7781 FAX 777-5873

March 8, 1995

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P.O. Box 670
Rawlins, Wyoming 82301



RE: Draft EIS, Union Pacific Resources Company Greater Wamsutter Area II
Natural Gas Development Project

Dear Mr. Spehar:

Jake Strohman and Phil Ogle of the Water Quality Division (WQD) reviewed the above referenced Environmental Impact Statement (EIS) and provided comments which are presented below. Thank you for the opportunity to comment.

Production

The proposed production and facility construction operations provide an excellent approach to protect water quality.

Section 2.3.4.2.4 Water Resources

Measure 11 page 2-38, indicates "subsoil material reserve pits will be constructed in will be inspected for stability and, ability to determine if reinforcement or a liner is required." In determining the need for a liner, each site should be evaluated individually as proposed in this measure. However, there are additional factors which should be included in any site evaluation to determine whether a liner is necessary to protect groundwater. In most areas of the state, it is difficult for a qualified person to observe the soils and the surrounding surface features at a proposed reserve pit and come up with an accurate prediction of the lithology, depth to groundwater or the groundwater quality due to the extreme variability of geology and groundwater quality in Wyoming. It is suggested that this measure include evaluation of depth to groundwater or confining strata. Well pads in sensitive environmental terrains (hilly or mountainous or by wetlands or streams) should also require lined reserve pits regardless of other considerations.

Measure 14 page 2-32: All discharges of hydrostatic test water must be coordinated with WQD. If additional information is required, please contact Marisa Latady at 307-777-7781.

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: Agree. Current BLM pit lining policy in Wamsutter requires the use of a liner in sensitive environmental areas regardless of other considerations. (See Response 6 to EPA letter No. 2.2.6.)

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2.2.8 Letter from State of WY - Department of Environmental Quality, Continued

RESPONSE

March 9, 1995
Page 2

Measure 16 page 2-32: WQD's policy for coverage of oil and gas field development under the Wyoming general storm water discharge permit is still developing. Generally, entire fields will not be covered by one notification of intent and a single Pollution Prevention Plan (PPP). This policy means that each well and associated facilities (roads, pipelines, reserve pit, etc.) that disturb five acres or more must be covered under the permit separately. This policy, in the case of large field developments, requires a substantial effort by companies to comply, and WQD has been asked to reconsider full field coverage. In response to this request, the policy has been redefined. A company participating in a field development can either follow the general policy of single well permitting or file notification for coverage of all their wells within the field. The following criteria must be met to obtain full field coverage:

1. The company must have 20 or more wells proposed for the field development. A listing of all the proposed wells, which includes the legal locations, must be submitted to WQD.
2. A PPP must be prepared that describes the characteristics of the field, the specifics of each individual well site, and all erosion, sediment and storm water management practices that will be utilized at each site. Before coverage under the general permit is issued by WQD a PPP for a selected site must be submitted and approved.
3. All wells in the field will be subject to the permit requirements, including those that disturb less than five acres.

Questions regarding coverage under the general storm water permit should be directed to Leah Krafft, WQD, Cheyenne, 307-777-7781.

Sincerely,


Dennis Keener, Director
Department of Environmental Quality

DH/PRO/mad 51121.LTR

cc: File 95/92-059
Mary Adamy

2.2.9 Letter from State of Wyoming - Division of Parks and Cultural Resources

RESPONSE

DIVISION OF PARKS
& CULTURAL RESOURCES

Wyoming

Department of Commerce

State Historic Preservation Office
2301 Central, Barrett Bldg.
Cheyenne, Wyoming 82002-0240
(307) 777-7697
FAX (307) 777-6421



March 14, 1995

John Spehar
Bureau of Land Management
Rawlins District Office
P.O. Box 670
Rawlins, WY 82301

RE: Union Pacific Resources Company Greater Wamsutter Area II Natural Gas
Development Project Draft EIS (State I.D. No. 92-059); SHPO #0892RLB029

Dear Mr. Spehar:

Staff of the State Historic Preservation Office have reviewed the above referenced document as it pertains to cultural resources. Thank you for allowing us the opportunity to comment.

We found the information concerning cultural resources in the project area to be comprehensive. We have only a few brief observations to make.

On page 3-72, the first and second paragraphs reference incorrect table numbers (Table 3-19 should be Table 3-20 and Table 3-20 should be Table 3-21 in two places).

We believe there may have been an oversight in that there should be a discussion of the proposed action (preferred alternative) under section 4.11.3 Direct and Indirect Impacts on page 4-81. Also on page 4-81, it is more correct to state that, "Additionally, if the portion of a site crossed by earth-disturbing activity does not possess the qualities that make the site eligible, the project may be judged to have no adverse effect on the site."

Under section 4.11.6 Mitigation Summary on page 4-83 we would like to point out that there may be other more appropriate or economical ways to mitigate adverse effects to historic period properties than the one option mentioned in this paragraph. The State Historic Preservation Office recognizes that HABS/HAER recording of standing structures is warranted in some cases but may not be necessary in all situations. We welcome the opportunity to work with the BLM in designing innovative mitigation strategies.

Please refer to SHPO project control number #0892RLB029 on any future correspondence dealing with this project. If you have any questions contact Karen Kempton at 307-777-6292 or Judy Wolf, Deputy SHPO, at 307-777-6311.

Sincerely,

Judy F. Wolf
for John T. Neck
State Historic Preservation Officer

JTK:klk:rtw

cc: Wyoming State Clearinghouse, State Planning Coordinator's Office,
Herchler Building, 4th Floor East, Cheyenne, WY 82002

Mike Sullivan
Governor

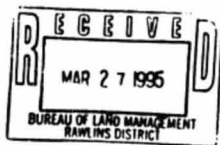
Don Rolson
Director,
Department of Commerce



General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: The BLM will continue to consult with the State Historic preservation Office in matters of historic properties. Suggested wording changes and incorrect table number references (Table 3-19 should be Table 3-20 and Table 3-20 should be Table 3-21 in two places) are included in the Errata.

2.2.10 Letter from Amoco Production Company



Amoco Production Company
Northwestern U.S. Business Unit
Amoco Building
1870 Broadway
Post Office Box 800
Denver, Colorado 80201
303-830-4040

March 21, 1995

Mr. John Spehr
Rawlins District Office
Bureau of Land Management
P O Box 670
Rawlins, Wyoming 82301

Greater Wamsutter Area II Natural Gas Development Project
Draft Environmental Impact Statement

Amoco Production Company (Amoco), a subsidiary of Amoco Corporation, is incorporated for the purpose of exploring for and developing oil and gas resources throughout the United States. Amoco has extensive federal leaseholdings throughout the western U.S., and a continuing interest in the federal land planning process. Amoco has conducted and will continue to conduct operations in the Greater Wamsutter Area II (GWAI), therefore, management policies outlined in this draft EIS could have an impact on Amoco's interests in the area. We appreciate the opportunity to comment on this draft EIS.

1 In section 2.3.4.1 it is stated "The operators will develop and submit for approval an area-wide transportation plan for road development and maintenance within the analysis area - to be completed within 6 months of project approval." It is unrealistic to expect that there can actually be a usable, specific transportation and road network plan for all of industry for the next 5 to 10 years. Development plans will differ from company to company as will the economic situation. The way this is currently written, it is unclear who is responsible for completing the transportation plan and who is responsible for later implementation and "policing". If there is one large transportation plan for the entire area, this should be a function of the BLM, not the individual operators. However, it seems more useful for the primary operator(s) of each field within GWAI to submit and carry out their own individual transportation plans and maintenance agreements under some "global" BLM guidance.

2 In section 2.3.4.2.3, "Project Wide Mitigation Measures/Soils," you have stated that the operators are to limit construction activities to periods when the soils are dry or not frozen. We suggest that this wording is changed to "Frozen or saturated soils will not be used as construction material." This clarifies what is meant by the statement. The previous wording leads one to believe that no construction of any kind would be allowed during most of the year in Wyoming.

3 In section 2.3.4.2.5, Vegetation and Wetlands, the following mitigation measure is proposed "Seed and stabilize disturbed areas with seed mixtures and treatment measures recommended in Appendix D." These should be left as recommendations, with the final reclamation plan for a site left up to the BLM and the operator. At this point, this is one opinion of the best seed mixtures and

RESPONSE

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: Because the oil and gas industry has constructed and/or will construct most of the roads in the analysis area and the road network is within a "checkerboard" land ownership pattern, the BLM will continue to rely on the operators within the field to provide their road construction and road maintenance needs for planning purposes. Industry must be a co-partner in management of the current and future network of roads in this area if impacts to other resource values are to be mitigated. The purpose of the transportation plan is to provide an instrument for mutual understanding and mutual commitment in constructing and maintaining an adequate road network, a road network that will be safe and adequate for drilling and production operations and will still be built and maintained in a manner that will protect other resource values. The development of transportation plans is still evolving, especially where a "checkerboard" land ownership pattern exists. However, the BLM would suggest the transportation plan be jointly prepared by BLM and industry (UPRC being the initial lead for industry) with input from private landowners and the county engineer (for county roads). The plan would include the following: 1) An accurate and current base map of the existing road network. 2) Guidelines for road location, design, construction, quality control, and maintenance. 3) Current status and condition of each road (to be periodically updated). 4) Priority list with timetables for road upgrading, maintenance, as well as the reclamation of unneeded or abandoned roads (priority list to be periodically updated). The primary operators of each field within the GWAI as well as private landowners would need to provide individual development plans and maintenance needs (perhaps on a yearly basis) to be reviewed and incorporated into the transportation plan. Implementation and update of the plan would be the responsibility of a selected team of industry/private/BLM representatives. The BLM would provide overall guidance and some site supervision as mutually agreed upon by members of the team.

Response 2: Agreed. The text will be changed to read "Construction activity will not be conducted using frozen or saturated soil material or during periods when watershed damage is likely to occur." These changes are reflected in the Errata.

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2.2.10 Letter from Amoco Production Company, Continued**RESPONSE****3, Cont'd.**

treatment measures for the area. The BLM and the operator may have years of experience that lead them to other conclusions.

4

Also in section 2.3.4.2.5, Vegetation and Wetlands, the following mitigation measure is proposed "Design a noxious weed monitoring program and implement, if necessary, a weed control and eradication program per BLM requirements." We do not think it is necessary to have a full-blown weed monitoring "program" to ensure that weeds do not get out of control. Perhaps the problem is in the definition of the word "program". What does this entail? Will there be forms to fill out? Will there be programs to write or file with the BLM? This seems excessive when all it really takes is a visual inspection.

5

In section 2.3.4.2.7, Wildlife, the following mitigation measure is proposed "Inform all project employees of applicable wildlife laws and penalties associated with unlawful take and harassment." Again, what does this involve? Is it simply a matter of informing our employees via a memo or pamphlet, or is it more involved? Would the operators be required to track who had received this information? It is the responsibility of every citizen to be aware of this information, and it seems reasonable to expect operators to remind their employees; however, we believe that it is excessive to expect the operator to be the "instructor" to every contractor or worker in the field.

6

Also in section 2.3.4.2.7, Wildlife, the following mitigation measure is proposed "Relocate drilling sites to avoid white-tailed prairie dog colonies." This is an unrealistic measure. This should be linked to a burrow density and/or size criteria. We do not think it is reasonable to require that we avoid prairie dog colonies that are not suitable black footed ferret habitat.

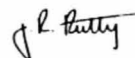
7

In the Hazardous Materials section, please note that the operators are not necessarily the ones doing the actual drilling. Drilling is often contracted out, and the drilling companies keep their MSDSs on the rig site, not at the field office of the operator.

8

In section 4.12.6, Mitigation Summary, it is stated that "GWAIL operators should implement a socioeconomic monitoring program that would track area housing availability, the number of relocating workers and the residential locations of workers. Information on housing availability should be made available to relocating workers to assist them in their search for suitable housing. In the event that available housing supplies cannot meet worker demand, GWAIL operators should work toward developing a worker housing mitigation plan that identifies other housing facilities and aids in locating temporary employee housing in the Wamsutter area." This measure is excessive and impractical. It would be a logistical nightmare for one of the numerous operators to attempt to administer it for the entire area. The BLM or the county agencies should take charge of this if it is really deemed necessary, which we do not believe to be the case.

In conclusion, Amoco believes these concerns can and should be addressed in the Final Environmental Impact Statement. Again, we appreciate the opportunity to comment.



J. R. Rutty
Environmental Specialist

Response 3: The context of Appendix B has been clearly stated throughout the DEIS. Please note that Section 1.0 Introduction of Appendix B states that "This appendix (Appendix B) provides recommendations only and therefore, is not a reclamation plan. The final reclamation measures that would be applied should be based upon site-specific conditions and validation of these recommendations upon the approval of, and in agreement with, the BLM Authorized Officer (AO)."

Response 4: As future surface disturbance occurs, weed infestation may become a significant problem. At a minimum, each company will be expected to develop and implement their own noxious weed monitoring and control program. The program should outline measures for routine monitoring and the use of reseeding and mechanical and/or chemical control methods. A permit is already required from BLM when chemicals are used. If this company approach proves to be inadequate, a more broad approach may be required.

Response 5: It is the responsibility of each individual company to inform and/or remind their employees and contractors of responsible behavior. A contractor is employed by the company and a contractor employee is viewed as a temporary employee of the company. The method of instruction is at the discretion of the individual company.

Response 6: This statement is correct. The mitigation measure is expanded to read: "Relocate drilling sites to avoid white-tailed prairie dog colonies when these colonies are greater than 200 acres in size and active towns are located within the colony."

A prairie dog town is defined as an area with >8 burrows per acre and a complex is defined as 2 or more neighboring towns that are within 4.34 miles from each other. Surveys are only valid for a period of 1 year. If projects are proposed in areas with less than 80 acres of black-tailed prairie dogs and less than 200 acres of white-tailed prairie dogs then preactivity surveys will not be required to satisfy the regulations (50 CFR 402) governing interagency cooperation under the Endangered Species Act. These areas may be cleared without a ferret survey.

Response 6 (Continued), 7 and 8 on following page.

2.2.10 Letter from Amoco Production Company, Continued	RESPONSE
	<p>Response 6, Continued.</p> <p>In black-tailed prairie dog towns or complexes greater than 80 acres but less than 1,000 acres - and in white-tailed prairie dog towns or complexes greater than 200 acres but less than 1,000 acres, the area may be cleared after a survey for black-footed ferrets has been completed, provided that no ferrets or ferret sign has been found. This must occur because these areas may have importance for black-footed ferret recovery (i.e. the FWS is in the stages of reintroducing ferrets into northwestern Colorado) and the FWS and other agencies are working together to identify and secure sites with potential for ferret reintroduction, identify those towns that do not meet the requirements for ferret survival and recovery, and develop plans for managing prairie dog ecosystems.</p> <p>Information pertaining to this matter can be obtained from BLM biologists at the Great Divide Resource Area in addition to utilizing the FWS Guidelines (May 1989) and the BLM Wildlife Technical Bulletin No. 1 <i>Handbook of Methods for Locating Black-footed Ferrets</i> (Jan. 1984).</p> <p>Response 7: The words <u>field office</u> will be changed to read <u>workplace</u>. 29 CFR 1910.1200(g)8 states "The employer shall maintain copies of the required MSDSs for each hazardous chemical in the workplace" The workplace in this instance is the rig site or field location. This wording change has been noted in the Errata.</p> <p>Response 8: Socioeconomic monitoring activities such as those outlined in Section 4.12.6 are frequently implemented in situations where energy resource development activities have the potential to generate adverse impacts due to rapid in-migration and localized population growth. Because the potential for impacts derives from activities pursued by the GWA II operators, it is appropriate that they assume financial responsibility for these monitoring activities, rather than imposing the task on local units of government or federal agencies. Since multiple operating companies are involved, logistical difficulties could be reduced through coordination of monitoring and mitigation efforts by a single organization or contractor that represents an association of the operators.</p> <p>89</p>

2.2.11 Letter from Petroleum Association of Wyoming



PETROLEUM ASSOCIATION OF WYOMING

a division of Rocky Mountain Oil and Gas Association

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Casper, Wyoming 82601

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Richard T. Robitaille
Executive Director

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Cathy Schulte
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Katherine G. Springer
Associate Director

March 24, 1995

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P O Box 670
Rawlins, Wyoming 82301

Dear Mr. Spehar:

On behalf of the Petroleum Association of Wyoming (PAW), a division of the Rocky Mountain Oil and Gas Association (RMOGA), and in response to the proposed Greater Wamsutter Area II Natural Gas Development Project Draft Environment Impact Statement (DEIS) we offer the following comments.

PAW is a trade association representing hundreds of oil and gas operators, large and small, who account for 90 per cent of the oil and natural gas exploration, development and transportation activities in Wyoming. Recent testimony by the American Petroleum Institute and RMOGA before the Senate Energy and Natural Resource Committee of the US Senate pointed to the oil and gas industry successfully adapting to the one of the most difficult periods in history; however, industry is positioned to meet the major challenges facing the domestic and world markets for supplies of our principal products.

Continued domestic exploration, production and transportation of the nation's energy products is of paramount importance to reduce our dependence on foreign oil. When access to federal lands for mineral development is being curtailed nationwide, PAW continues to support projects of this nature which will enhance known proven reserves, promote technological advancements while supporting the nation's budget, the state of Wyoming and its people through lease rentals, bonus payments, taxes, just to name a few.

PAW is in general support of the Greater Wamsutter II DEIS; specifically we direct BLM's attention to the following comments.

Section 2.3.2.3 Access Road Construction (Page 2-11) Recent BLM/industry meetings discussing road construction standards addressed the need for streamlining the process which has, from resource area-to-resource area and district-to-district, proven to be inconsistent. Specifically, one of the recommendations from the meeting included

RESPONSE

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: BLM Manual 9113 states "all permanent roads constructed by non-government entities across public lands must be designed by or under the direction of a licensed professional engineer." (See BLM Manual Section 9113.06F.) The manual also states "Construction inspection must be done by qualified inspectors." (See BLM Manual Section 9113.53.) Language in this section of the EIS is consistent with BLM Manual 9113. However, the following sentence is added to Section 2.3.2.3 in the Errata for further clarification. "The BLM district engineer will assist the operator in determining the survey and design requirement so as to minimize cost while ensuring that the road is safe for the user and meets Bureau standards." (See Wyoming State BLM Manual Supplement Section 9113.4.)

2.2.11 Letter from Petroleum Association of Wyoming, Continued**RESPONSE**

Mr. John Spehar
March 24, 1995
Page Two

1, Cont'd.

eliminating the 300 foot rule specifying that all roads over 300 feet would require a road design. There are instances where a proposed road to a well site is on flat ground, with no visual impairments or areas where erosion is unlikely to occur. BLM/industry agreed road designs should be required on a case-by-case basis. The BLM Manual 9113 for Road Standards does not call for a licensed, professional engineer to be present during road construction. Industry already prepares a road design and in many cases is required to have a licensed professional engineer approve the road upon completion. To add an additional cost of hiring a professional engineer to remain onsite during construction is not acceptable. Therefore, we would suggest deleting any language, within this section, that is not consistent with the BLM Manual 9113.

2

Section 2.3.4.1 Preconstruction Planning and Design Measures (Page 2-33) states "the operators will develop and submit for approval an area-wide transportation plan for road development and maintenance within the analysis area...to be completed within 6 months of project approval." Because individual companies may have differing development plans and economic considerations, it is unreasonable to expect a specific transportation and road networking plan, much less one that is usable, be developed. The document is unclear who will be responsible for completing this transportation plan much less who will be responsible for enforcing the transportation networking system. Industry believes it is the responsibility of BLM and not the individual operators.

3

Section 2.3.4.2.3 Soils (Page 2-34) Under *Measure 4* the language is not clear by "limiting construction activities to periods when the soils are dry or not frozen." The wording could be loosely interpreted to mean no construction of any kind would be allowed during this period which could include a better part of the year in Wyoming. Therefore, we suggest changing this statement to read "Frozen or saturated soils will not be used as construction material."

4

Section 2.3.4.2.5 Vegetation and Wetlands (Page 2-35) *Measure 2* suggests stabilizing disturbed areas with specific seed mixtures and treatment measures. To require a specific seed mixture and treatment method leaves no room for site specific treatment options. Individual operators and BLM personnel may have extensive knowledge of the area and may have alternative treatments which would lead to quicker reclamation of an area. Industry suggests leaving this measure as a recommendation rather than a requirement.

5

Additionally under *Measure 3* a visual inspection may be all that's necessary rather than a program to monitor noxious weeds. The language is unclear as to what kind of program will be required, extensive monitoring documentation, or submission of additional programs. Please clarify the term "program".

6

Section 2.3.4.2.7 Wildlife (Page 2-41) *Measure 12* suggests relocating drill sites to avoid white-tailed prairie dog colonies. Please clarify, is moving the drill site directly linked to

Response 2: The purpose of the transportation plan is to provide an instrument for mutual understanding and mutual commitment in constructing and maintaining an adequate road network, a road network that will be safe and adequate for drilling and production operations and will still be built and maintained in a manner that will protect other resource values. See Response 1 to Letter No. 2.2.10 (Amoco).

Response 3: See Response 2 to Letter No. 2.2.10 (Amoco).

Response 4: See Response 3 to Letter No. 2.2.10 (Amoco).

Response 5: See Response 4 to Letter No. 2.2.10 (Amoco).

Response 6: See Response 6 to Letter No. 2.2.10 (Amoco).

2.2.11 Letter from Petroleum Association of Wyoming, Continued**RESPONSE**

Mr. John Spehar
March 24, 1995
Page Three

Cont'd
6

a burrow density and/or size criteria. Also, there is no distance specification for an operator who would be required to move a drill site contained in this section. Industry suggests this measure is unreasonable to require avoidance of prairie dog colonies that are not suitable black footed ferret habitat.

7

Section 2.3.4.2.11 Cultural Resources (Page 2-44) This section proposes the Advisory Council be consulted on all mitigation plans of adverse effects to cultural/historical properties. If BLM and SHPO agree on the mitigation plan, is it necessary to add an additional layer of review when there is agreement between the responsible federal agency and consulting state agency?

8

Section 2.3.4.2.14 Health and Safety (Page 2-46) Transportation of materials as described under Hazardous Materials is regulated by the Department of Transportation and is not necessarily under the control of the operator. This section needs to reflect that when the contractor transporting hazardous materials for the drilling contractor is not the operator is precluded from this provision.

9

In Chapter 4 under **Section 4.12.6 Mitigation Summary** to place the burden of administering socioeconomic monitoring program for the entire planning area upon one of the numerous operators is excessive and impractical. The logistics, alone, for accomplishment this monumental feat would require additional staffing for an operator and is not practical. As a good neighbor, operators may provide information to BLM or the county agencies who should be responsible for conducting and monitor socioeconomic analysis activities.

In conclusion, PAW appreciates the opportunity to comment on this DEIS and would like to receive additional information on this project as it becomes available to the public. If there are questions regarding this letter, please advise.

Sincerely,

Kathy

Kathy Springer

cc: John Kauchich
Mike Mueller
Dave Petrie, UPRC
Jan Rutty, Amoco Production Company
Lee Shafer, E&P Chairman
Claire Moseley, RMOGA

Response 7: Yes, consultation with the Advisory Council on Historic Preservation is required under 36 CFR 800 for implementation of the National Historic Preservation Act.

Response 8: There seems to be some confusion concerning the term operator. Operator as defined by the Department of Transportation (49 CFR 171.8) is "a person who controls the use of an aircraft, vessel or vehicle." Operator as defined in A Dictionary of Petroleum Terms, is "the person or company, either proprietor or lessee, actually operating an oil well or lease. For clarification in this document, operator will refer to the oil company by whom the drilling contractor is engaged.

The operator "will require" any subcontractor company or personnel to comply with all applicable provisions contained in 29 CFR 1910.1200.

Response 9: See Response 8 to Letter No. 2.2.10 (Amoco).

2.2.12 Letter from U.S.D.I. - Fish and Wildlife Service

RESPONSE

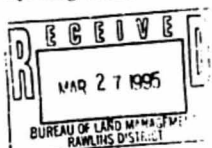


United States Department of the Interior
FISH AND WILDLIFE SERVICE

Ecological Services
4000 Morrie Avenue
Cheyenne, Wyoming 82001

IN REPLY REFER TO

ES-61411
mlj/W.02(wamsutII.scp)



March 24, 1995

Memorandum

To: John Spehar, Rawlins District, Rawlins, Wyoming
From: Field Supervisor, Ecological Services, Cheyenne, Wyoming
Subject: Draft Environmental Impact Statement for the Wamsutter Area II Natural Gas Development Project.

Thank you for the opportunity to review the subject document (hereinafter referred to as draft EIS). I have concerns with the following issues, and request that they be addressed in the final EIS.

General Comments

The proposed full field development of the Wamsutter project is only one of many energy development projects that are or will be occurring in southern Wyoming in the near future. In response to elevated energy development interest in this part of the state and apparent lack of information regarding long-term wildlife resource impacts, I met with the Bureau of Land Management's Acting State Director on January 9. During our meeting, we discussed the need for better impact analyses, specifically cumulative effects. There was mutual agreement that more effective analyses were needed to address wildlife resource impacts from increasing energy development pressures. However, after discussing the implementation schedule of the Bureau's proposed Southwest Wyoming Resource Evaluation (Evaluation), it became apparent that a review and any subsequent actions that would minimize many of the impacts associated with proposed or expected energy development in southwestern Wyoming would not be available for about five years. During the interim, I foresee many additional energy development projects, such as Wamsutter, will be developed without adequate impact analyses.

1

Below, I reiterate many of the concerns expressed during evaluation of the Creston Blue Gap project, as well as several other smaller field development projects. The reoccurring theme of concerns is that impact analyses of energy development projects have thus far been treated incrementally and not cumulatively. Though the formation and active participation by a multi-agency group of biologists in a Bureau sponsored cumulative effects Task force has

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: The formation of an Interagency Cumulative Effects Task Force is an effort by BLM and others to better address cumulative impacts to wildlife. The Cumulative Effects Task Force held an initial meeting in May, 1995. The Task Force has 14 specialists that plan to meet each month to create a model to analyze cumulative impacts from oil and gas development. The objective of the Task Force are, (1) to formulate an operational procedure/process for addressing the analysis of cumulative impacts of oil and gas development on wildlife resources, and (2) to use the procedure/process as a statewide model.

The Great Divide Resource Area will also initiate efforts with the USFWS to address raptor mitigation plans within the GWA II.

93

2.2.12 Letter from U.S.D.I. - Fish and Wildlife Service, Continued	RESPONSE
<p style="text-align: right;">2</p> <p>1, Cont'd.</p> <p>been identified as a potential mechanism to address cumulative impacts in the short-term, little if any, progress has been made to date in the formation of this Task force.</p> <p>Though I still believe the Evaluation and cumulative effects Task force are needed to evaluate impacts to wildlife resources and plants, protective measures are required in the interim. I am particularly interested in the development of a raptor mitigation program that considers possible impacts of the entire Greater Wamsutter area, as well as surrounding energy development projects.</p> <p>Specific Comments</p> <p>2</p> <p>Page 2-29 - Where produced water exceeds evaporation, pits are likely to contain open water and hydrocarbons. Evaporation pits containing standing water and hydrocarbon byproducts are known to result in migratory bird mortalities, particularly waterfowl and shorebird species. As the authorizing agency, the Bureau must take measures to minimize impacts to migratory birds. To ensure compliance with the Migratory Bird Treaty Act, the Service requests the Bureau require all produced water pits be netted within 24 hours after standing water is documented.</p> <p>3</p> <p>Pages 2-39 and 4-72 - The Service has determined that depletion of any waters of the Green River basin will jeopardize the continued existence of four downstream endangered Colorado River fish. Although small depletion (<100 acre/feet) fees are currently waived, the Bureau must still request initiation of formal consultation. Larger depletions (100 to 2000 acres/feet) must also undergo formal consultation and are offset by financial contributions to the Fish and Wildlife Foundation as described on page 4-72.</p> <p>4</p> <p>Page 2-42, Measures 6 and 7 - The Service concurs that seasonal restrictions within three-quarters of a mile of active nests minimizes interruption of nesting raptors. However, these measures are short-term and do not consider the possible impacts associated with structure and human disturbance in the future. Under current Bureau stipulations, a well pad could be placed in the immediate vicinity of a raptor nest, provided construction was completed outside of nesting season. Depending on the distance and type of disturbance and species of raptor, current stipulations may result in the future functional loss of raptor nests, ultimately resulting in reduced future recruitment. One of the impact significance criteria is whether an action has direct or indirect effects that result in long-term decreases in recruitment and/or survival (page 4-48). The Service believes that the current timing restrictions provide no long-term protection of recruitment and/or survival and are therefore resulting in a significant impact to raptors.</p> <p>Not all raptor species are equally susceptible to human disturbance; however, ferruginous hawks are known to be one of the most intolerant of all raptors. Since most of the raptor nests identified during 1992 and 1994 surveys were those of ferruginous hawks, the potential long-term impacts associated with energy development need to be addressed. Because impacts may result in nest or territory abandonment, the Service requests the Bureau contact</p>	<p>Response 2: Additional text is provided in the Errata stating that all new open produced water pits will be netted or covered at the time of construction so as not to be accessible to migratory birds.</p> <p>Response 3: The BLM will request formal consultation as soon as the Biological Assessment (BA) is completed.</p> <p>Response 4: The BLM has a timing stipulation that prevents surface disturbance from Feb. 1 to July 30 for raptors. There are so many nests in the GWA II that if a 0.75 mile, year-long no surface disturbance stipulation were placed around each nest, development would be severely restricted. Some of these nests are extremely old and are not being used. It takes 3-5 years of intensive surveys to "update" the status of such nests. Monitoring is probably the best action to take for raptors within the project area. There are artificial nest structures in place that are being frequently monitored and a plan to monitor natural nests could be developed. The Great Divide Resource Area will initiate efforts to address raptor mitigation plans within the GWA II with the USFWS.</p>

2.2.12 Letter from U.S.D.I. - Fish and Wildlife Service, Continued	RESPONSE
<p style="text-align: right;">3</p> <p>4, Cont'd. this office to initiate efforts to develop a Raptor Mitigation Plan prior to further development within Greater Wamsutter Area. Given the relatively high number of active raptor nests identified in the Creston/Blue Gap area, we should also reevaluate the long-term impacts of energy development on raptor nesting success for this area.</p> <p>We are currently working with the Bureau's Platte River Resource Area staff and a number of producers to develop and implement a Raptor Mitigation Plan to offset future impacts to raptor recruitment. Though the mitigation measures have not been finalized, we believe many of the components that will ultimately be incorporated into this plan are also applicable to the Wamsutter Area II development. Some of the measures that have been discussed include movement of the well pad, directional drilling, natural nest enhancement, and erection of artificial nest structures.</p> <p>5 Page 4-36, 4.5.2 Impact Significance Criteria - Bullet three indicates that one of the objectives/actions for plant species of concern is "Maintaining or enhancing...". I can find no further reference to actions that would enhance plant species of concern. The Service supports enhancement actions, particularly since page 4-38 indicates that "Except for habitats occupied by plant species of concern, clearing of upland cover types would not be significant..." Put another way, disturbance of plant species of concern is significant and although the draft EIS provides avoidance measures, it forwards no recommendations for enhancement actions. Examples of species specific enhancement actions should be provided in the final EIS.</p> <p>6 Page 4-50, Mountain Plover - To assist the Bureau in minimizing the impacts to nesting mountain plovers the following survey guidelines are recommended:</p> <ol style="list-style-type: none"> 1. Detailed visual observation of the area within 1/4 miles of a proposed well and 100 yards of proposed access routes should be made to detect the presence of plovers. All plovers located should be observed long enough to determine if a nest is present. Where possible, and not prohibited, these observations should be made from a stationary vehicle, as plovers do not appear to fear vehicles. 2. If no visual observations are made, the area should be surveyed on foot. Extreme care should be exercised to locate plovers, due to their highly secretive and quiet nature. 3. Surveys should be conducted no more than 14 days prior to the date actual construction/drilling activities begin. If two surveys are required, they should be made at least 14 days apart, with the last survey no more than 14 days prior to the start-up date. 4. The number of surveys required to clear a site for mountain plovers prior to beginning a planned activity is dependent upon the start-up date, as shown below. 	<p>Response 5: The term "enhancing" is included in management directives of the Great Divide Resource Area RMP. As can be seen in Appendix B, the seed mixes recommended for the project mostly include native species that are constituents of the vegetation communities in the project area. Other than restoring the habitats of special status plants, no other "enhancement" measures are recommended unless mandated by the BLM per their policy.</p> <p>Response 6: Thank you for providing the BLM with the USFWS recommended survey guidelines. Field checks will be completed by BLM specialists (or qualified personnel working for the companies due to the increasing number of wells, reduced man-power, etc.) at the APD level.</p> <p style="text-align: center;">95</p>

2.2.12 Letter from U.S.D.I. - Fish and Wildlife Service, Continued

RESPONSE

4

<u>Date of planned activity</u>	<u>Number of surveys</u>
March 15 through April 15	1
April 15 through July 15	2
July 15 through August 15	1

6, Cont'd.

5. If an active nest is found in the survey area, the planned activity should be delayed at least 30 days. If a brood is observed activities should be delayed at least seven days.

6. Grading activities and new road construction should be minimized during the period from May 25 through June 30 to lessen hazards to early developing chicks. More plover activity has been identified on established roads than on two-tracks.

7. No new surface disturbing activities should be allowed during the reproductive period March 15 through August 15 in identified concentration areas. These are defined as areas where broods and/or adults have been documented in at least two of the past three years.

7

Page 4-66 and elsewhere - As described above, timing restrictions are not providing adequate long-term protection for raptors. These sections should be modified to indicate that a Raptor Mitigation Plan will be developed in coordination with Wyoming Game and Fish Department and the Service to offset long-term impacts.

8

Page 4-67, 4.7.5.6 Candidate Species - I commend the Bureau for recognizing potential impacts to non-game species from a regional perspective. However, it is not clear what this paragraph means. Without a cumulative effects analyses of some sort, I am not sure how you determine what the effects of the action are relative to the carrying capacity of the area. Please clarify this section.

These preliminary scoping comments are made pursuant to the National Environmental Policy Act, the Endangered Species Act and Fish and Wildlife Coordination Act. Please keep this office informed of any developments or decisions concerning this project. If you have any questions, please contact me or Mike Jennings of my staff at the letterhead address or phone (307)772-2374.



Charles P. Davis

cc: Director, WGFD, Cheyenne, WY
Nongame Coordinator, WGFD, Lander, WY

Response 7: The Great Divide Resource Area will initiate efforts to address raptor mitigation plans within the GWA II with the USFWS.

Response 8: This text has been clarified in the Wildlife analysis provided in the Errata of this FEIS (Section 4.7.5.6).

2.2.13 Letter from Wyoming State Geological Survey

RESPONSE



WYOMING STATE GEOLOGICAL SURVEY
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(307) 766-2286 • FAX 307-766-2605

STATE GEOLOGIST - Gary B. Glass

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SENIOR ECONOMIC
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PUBLICATIONS
Editor
Richard W. Jones

January 17, 1995

- Memorandum -

TO: Julie Hamilton, Wyoming State Clearing House

FROM: Gary B. Glass, State Geologist *GBG*

SUBJECT: Draft Environmental Impact Statement for the Union Pacific Resources Company's Greater Wamsutter Area II Natural Gas Development Project (State Identifier #92-059)

We have reviewed this Draft Environmental Impact Statement (DEIS) and have the following comments:

There are some small abandoned underground coal mines in Townships 19-20, Range 92, which might affect a drill site if they are missed. The DEIS also did not mention gold anomalies recently discovered in this area of the State (Wyoming State Geological Survey Open File Reports 92-5 and 94-2). While these anomalies may not affect this project, we call attention to their existence.

We have prepared preliminary surficial geology maps of this area at a scale of 1:100,000. These maps show some eolian and playa lake deposits that could be of interest in siting drilling pads or roads in the area.

If the DEIS preparers want additional information on these comments, they should contact the following members of my staff:

Dan Vogler - coal
Dan Hausel - gold anomalies
Jim Case - surficial geology maps

GBG/sb

General Response: Thank you for taking the time to review the DEIS and providing your comments.

General Response

2.2.14 Letter from Wyoming State Land and Farm Loan Office



Wyoming State Land and Farm Loan Office

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REAL ESTATE DIVISION

MEMORANDUM

TO: Julie Hamilton, Wyoming State Clearinghouse

FROM: Paul Cleary, Deputy Director *PC*

DATE: March 16, 1995

SUBJECT: Union Pacific Resources Company Greater Wamsutter Area II Natural Gas Development Project - Draft Environmental Impact Statement

We have reviewed the subject document for potential involvement of and impact on Wyoming state trust lands and minerals under the proposed natural gas drilling and production project. We note that the Greater Wamsutter Area II analysis area encompasses a number of parcels of state trust land surface and/or subsurface estate. Gas exploration and development activities on these state parcels can be greatly influenced by the activities allowed on surrounding federal lands. As such, we strongly support the proposed action/preferred alternative which provides a maximum development scenario of 750 wells and 300 locations within the analysis area, in addition to existing operations.

RESPONSE

General Response: Thank you for taking the time to review the DEIS and providing your comments.

2.2.15 Letter from Wyoming Game and Fish Department

RESPONSE

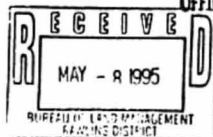
WYOMING
GAME AND FISH DEPARTMENT



RECEIVED

WR17 --

GOVERNOR'S
OFFICE



March 15, 1995

EIS 6719
Bureau of Land Management
Rawlins District Office
Great Divide Resource Area
Draft Environmental Impact
Statement
Union Pacific Resources
Company Greater Wamsutter Area
II Natural Gas Development
Project
SIN: 92-059
Carbon & Sweetwater Counties

WYOMING STATE CLEARINGHOUSE
ATTN: JULIE HAMILTON
OFFICE OF THE GOVERNOR
STATE CAPITOL
CHEYENNE, WYOMING 82002

Dear Ms. Hamilton:

The staff of the Wyoming Game and Fish Department has reviewed the draft Environmental Impact Statement for the Greater Wamsutter Area II, Natural Gas Development Project on the Great Divide Resource Area. We offer the following comments for your consideration pursuant to the National Environmental Policy Act.

The proposed action is to develop 750 wells in 300 locations plus networks of roads, pipelines, and other ancillary facilities throughout a 522-square mile project area. Three alternatives were also considered in the analysis. Two of these (300 wells in 250 locations and 225 wells in 200 locations) simply reduce the size of the project. The "no action" alternative would defer regulation of well development to the Great Divide RMP, based on case-by-case evaluation of each well. We do not believe these alternatives address the full range of reasonable alternatives [40 CFR 1502.14(a)]. Specifically, the analysis fails to consider alternatives [40 CFR 1502.2] that [P.L. 95-190, Sec 101(b)(3)] "Attain the widest range of beneficial uses of the environment without degradation ..." Furthermore, BLM has not incorporated an alternative which [40

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: There are four alternatives identified in the EIS that describe varying levels of production within the GWA II. These four alternatives provide a clear basis for choice among options by the authorized officer. The BLM believes that these existing alternatives, with the mitigation measures and stipulations identified in the EIS, are adequate to address disturbance and potential impacts to the sensitive habitats you identified.

After meeting with both the USFWS and the WGFD on other EIS projects, a consensus was reached, among biologists and other specialists, that certain sensitive habitats would be identified and mapped by the BLM (or consulting firm) as sensitive habitats, i.e. crucial winter range, raptor concentration areas, or sage grouse lek/nesting habitat clusters. When more than 2 wells are proposed for development within or adjacent to these sensitive areas then informal consultation with the Great Divide Resource Area, WGFD, and the USFWS would be conducted. This would allow for additional consideration to be given to these sensitive habitat areas within all four alternatives in the EIS.

99

2.2.15 Letter from Wyoming Game and Fish Department, Continued

RESPONSE

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1, Cont'd.

CFR 1500.2(f) "Uses all practicable means ... to minimize any possible adverse effects ..." BLM could meet these requirements by developing an [environmentally compatible] alternative that avoids locating wells in sensitive habitats (raptor nests on Delaney Rim, antelope crucial winter range, areas with high densities of prairie dogs or sage grouse leks) while proceeding with full field development in other portions of the EIS area. We believe such an alternative could be identified while still meeting the purpose and need for the action [40 CFR 1502.13] and the needs of the developer. We request an alternative based upon this premise be evaluated in the EIS.

2

This document identifies several mitigation measures that would probably minimize impacts of this project on wildlife species, and concludes that impacts would be minor if the mitigations are applied. However, the DEIS contains no executable provisions to implement mitigation. 40 CFR 1500.2 specifies agencies must "... use all practicable means ... to... minimize adverse effects of their actions upon the quality of the human environment. 40 CFR 1502.3 stipulates, "... Mitigation and other conditions established in the environmental impact statement or during its review and committed as part of the decision shall be implemented by the lead agency or other appropriate consulting agency. The lead agency shall ... include appropriate conditions in grants, permits or other approvals." The BLM has not committed to apply supplemental mitigations in either the proposed action or any of the alternatives. Much of the analysis in this NEPA document is invalid without enforceable, executable procedures which ensure these mitigation measures are implemented.

3

The cumulative impact analysis is very incomplete. Existing impacts were estimated using out-of-date information from 1981 topographic maps. The analysis did not consider an existing major project (Amoco Project at Bairoil) and omitted two other major projects that are in the process of development (Carbon County Underground Coal Gasification and Amoco's Continental Divide natural gas development). BLM is required by NEPA to rigorously analyze direct and indirect effects [40 CFR 1502.16(a) & (b)], including cumulative effects [40 CFR 1508.8]. Cumulative effects [40 CFR 1508.7] are impacts on the environment which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) or person undertakes such actions. We request BLM to complete this analysis.

Response 2: All enforceable and executable procedures will be set forth in the Record of Decision (ROD).

Response 3: Amoco's Continental Divide natural gas development project was not included in the Greater Wamsutter cumulative impact analysis because at the time the draft EIS was being finalized, the BLM did not have a clear proposal from Amoco as to what was planned. The BLM did not receive draft copies of a preparation plan from Amoco until February, 1995. The Continental Divide analysis area is primarily exploratory at this stage and estimates of drilling intensity and construction activity are speculative at best. The additional narrative and analysis which has been added to the Cumulative Impacts Analysis in this Final GWA II EIS is provided so that the reader will understand the level of possible future activity and potential environmental impact within the region. An intensive analysis of unit specific impacts and cumulative impacts will be addressed in the Continental Divide EIS and will be available for review by all interested publics.

Response 4: The analysis of potential impacts to Threatened, Endangered, and Candidate species of wildlife as a result of the proposed actions has been revised to reflect quantitative assessment of habitat losses for the listed species as well as a more in-depth cumulative impacts analysis. Avoidance and mitigation procedures set forth in the DEIS will be enforceable and executable when contained or referenced in the ROD. Therefore, impacts to Category 2 wildlife (as described in Section 3.7.4 Candidate Wildlife Species in the DEIS) will be reduced to non-significant levels.

2.2.15 Letter from Wyoming Game and Fish Department, Continued

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Our specific comments on this DEIS follow:

- 4 1) RE: Impact Categories (Sec S.2.7, p S-7) -- This project has the potential to seriously impact several important wildlife species, including some candidates for listing under the Endangered Species Act. Yet only three classifications were used to evaluate wildlife impacts: 1) "unlikely to occur"; 2) "reduced to non-significant levels"; or 3) "non-significant." We believe this is an overly optimistic evaluation. In particular, the lack of executable mitigation throughout the DEIS invalidates the second category. We also believe there are cumulatively significant effects which need to be disclosed as such.
- 5 2) RE: Waiver of Mitigation (p 2-32) -- We recommend BLM eliminate the case-by-case waiver of wildlife mitigation to avoid potentially invalidating conclusions drawn from this DEIS. Operators should be required to commit to all mitigation prior to development. The case-by-case approach does not consider interaction among project facilities, other developments, and ecological resources, and therefore, does not portray an accurate picture of impacts or mitigation needs. Specific mitigation for defined impacts (e.g. disturbance in crucial winter range) should be developed and included in the FEIS. Mitigation of adverse impacts which are foreseeable, but cannot be quantitatively predicted, should be rigidly tied to monitoring results, and compulsory mitigation contingencies should be defined in the FEIS. Unless compulsory procedures to implement mitigation are included in the FEIS, it is unlikely mitigation will be accomplished through subsequent (APD) processes and there is no defensible basis to support compliance with NEPA.
- 6 3) RE: Wildlife Mitigation Measure #2 (2-41) -- The second mitigation measure prescribes reclamation based on forage species useful for "resident herbivores" and also gives BLM discretion to alter seed mixes. In areas of important habitat (ie, pronghorn crucial winter range), we request BLM to base seed mixes principally on essential vegetation components required to support the habitat functions. The DEIS should define mixes tailored specifically for those areas and ensure they will be applied there.

RESPONSE

Response 4: The analysis of potential impacts to Threatened, Endangered, and Candidate species of wildlife as a result of the proposed actions has been revised to reflect quantitative assessment of habitat losses for the listed species as well as a more in-depth cumulative impacts analysis. Avoidance and mitigation procedures forth in the DEIS will be enforceable and executable when contained or referenced in the ROD. Therefore, impacts to Category 2 wildlife (as described in Section 3.7.4 Candidate Wildlife Species in the DEIS) will be reduced to non-significant levels.

Response 5: There are three types of actions approved by the BLM on a case-by-case basis; exceptions, modifications, or waivers. An exception is a case-by-case, one time exemption from a lease stipulation for a specific portion of a leasehold and is approved by the Area Manager with coordination through the WGFD. Modifications are changes in the lease stipulation, either temporarily or for the period of the lease, and are approved/disapproved by the BLM Deputy State Director. A waiver totally removes a stipulation and is also approved/disapproved by the BLM Deputy State Director. At this time, the BLM only grants "exceptions" to lease stipulations after consultation with both BLM specialists and the WGFD relative to adjacent project facilities and developments, environmental considerations (i.e. weather patterns, temperature, etc.) and potential impacts to wildlife. These exceptions are for relatively short time frames. Existing weather conditions are monitored daily and, if conditions warrant, the company is required to cease operations.

Response 6: The objectives for reclamation are to immediately stabilize the disturbed areas, control and minimize runoff, and restore primary productivity to the site. The three identified seed mixes when applied with authorized officer discretion where necessary, should meet the above objectives.

2.2.15 Letter from Wyoming Game and Fish Department, Continued

RESPONSE

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- 7 4) RE: Wildlife Mitigation Measure #3 (p 2-41) -- In view of the project size (750 wells) and substantial increase in human activity, we are concerned poaching will become a more serious problem. We suggest including a programmatic requirement in the DEIS prohibiting personnel from carrying firearms within the development area while engaged in work-related activities.
- 8 5) RE: Wildlife Mitigation Measures #9 and #10 (p 2-42) -- We suggest BLM increase the protective buffer around existing sage grouse leks to 0.5 mi.
- 9 6) RE: Impacts to Antelope Seasonal Range (Sec 2.3.4.2.7) -- The DEIS discloses 2,279 acres of seasonal range and 137 acres of crucial winter range will be directly affected (p 4-53). Noise, human, and vehicular activity will reduce habitat effectiveness over much broader areas by causing displacement, stress, and avoidance. WGFC mitigation policy places crucial winter range in the "vital" category. The Department is directed by the Commission to recommend no loss of habitat function. WGFC mitigation policy places winter/yearlong habitat in the "high" category. The Department is directed by the Commission to recommend no net loss of habitat function within the biological community which encompasses the project site. We strongly believe the ongoing cumulative decline in the habitat base caused by oil and gas development (and other developments) within the Wamsutter area will have long-term, detrimental effects on wildlife, in particular, antelope. The following developments have contributed to habitat loss within or near Greater Wamsutter Area II: Greater Wamsutter Area I, Mulligan Draw, Creston/Blue Gap, Uinta Basin Lateral Pipeline, and Hay Reservoir. Viable mitigation (Sec 4.7) could include range improvement projects; dismantling or modifying existing fences which impede movement and migration; retiring or converting sheep allotments; developing additional water sources outside of crucial range, including rehabilitation of deteriorated structures; and reclamation of abandoned roads, mines, and disturbances. Another possible mitigation would be for UPRC to modify portions of the woven wire fences found on some of the leases within the GWA II area, improving the availability of the remaining crucial winter range for antelope. We suggest developing a conceptual plan with detailed implementation procedures for inclusion in the FEIS. We believe such a plan is essential to support a finding of compliance with 40

Response 7: The BLM does not have the authority to restrict the carrying of firearms by personnel employed by the operator. This concern is addressed under Project-Wide Mitigation Measures found under Measure 3, Section 2.3.4.2.7 Wildlife. The operator has agreed to inform all employees of applicable wildlife laws.

Response 8: The BLM currently has a 0.25 mile buffer zone placed around leks. BLM specialists include an additional 0.25 mile buffer around the lek perimeter at both the competitive lease list notice level and the APD level. In addition, there is also a cumulative 2.0 mile buffer zone around leks for nesting and brood rearing areas for grouse. BLM specialists believe that this is an adequate amount of buffer at this time.

Response 9: There are certain restrictions placed on the BLM that prohibit requiring companies to practice off-site mitigation: Instruction Memorandum No. WY-93-160 refers to policy regarding off-lease compensation mitigation and states that the Regional Solicitor's Office determined that mandatory compensation was a form of "fund raising" and was beyond the BLM's legal authority. The Solicitor did state that if the money were used "on the lease" where the impacts occurred to enhance habitat for the species affected by the lessee's operation, then the fund would probably be appropriate; however, if the fund were used "off-lease" or for different species than those affected by the drilling then the fund may be inappropriate.

2.2.15 Letter from Wyoming Game and Fish Department, Continued

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9, Cont'd.

CFR 1500.2 (d); 40 CFR 1500.2; 40 CFR 1502.14(f); 40 CFR 1502.16(h); and particularly, 40 CFR 1502.3. WGFD personnel in Regions 4 and 6 are available to assist with the development of an effective mitigation plan.

10

- 7) RE: Survey Conditions for Sage Grouse (Sec 2.3.4.2.7, p 2-42) -- The DEIS states that aerial surveys of the area to locate sage grouse leks have been completed (mitigation measure #8). This is true, but not all of the surveys in 1994 were made following accepted techniques such as the 1982 WGFD Handbook of Biological Techniques. The Manual specifically states that surveys should be made on clear mornings, yet a survey on 24 March, 1994, was flown on a totally overcast morning. Observers completely missed 11 sage grouse strutting on the lek in SW 1/4 Sec 32, T21N, R93W which were counted by a ground observer as the plane passed overhead. That lek is incorrectly listed as "Inactive" in Exhibit 3-8, along with at least one other lek that was active but incorrectly listed as "Inactive." Accurate count data for these and other leks in the project area were supplied to BLM in July 1994. In December, 1994, we advised BLM personnel a draft version of Exhibit 3-8 still contained the incorrect lek designations. BLM should correct these errors and point out limitations of conditions under which some surveys were done in Sec 3.7.5.

Given the tendency for sage grouse to occasionally establish new leks, and the likelihood some leks were missed, mitigation measure #8 (p 2-42) should require lek surveys each year development and construction activities are anticipated within the project area. Otherwise the measure is not entirely effective. If a new or existing lek should be impacted by gas field developments because it was not mapped, the impact to sage grouse could be significant.

11

- 8) RE: Mitigation of Impacts on Private Surfaces (Sec 2.3.4.2.7) -- The descriptions of mitigation effectiveness are valid only if mitigation is applied to all gas developments within the EIS area. However, BLM claims it has no authority to mitigate impacts to public resources which occur on private surfaces unless the surface owner concurs. We believe this is inconsistent with NEPA, which requires use of all practicable means to minimize adverse effects and an effective means for implementation of those measures. If impacts are anticipated on private lands, then the project proponents (and the lead agency) should negotiate

Response 10: As referenced in the DEIS lek survey data is a result of the combination of the April, 1992 (USDA-BLM 1992a) and late March - early April, 1994 (HWA 1994a) surveys. The HWA 1994a reference, *Prairie Dog Colony and Sage Grouse Lek Surveys on the GWAA*, is the final report for the 1994 surveys, which only covers the approximate northern 1/3 and approximate southern 1/3 of the project area. The lek in the SW1/4 of Section 32, Township 21 North, Range 93 West was not within the 1994 survey area, and was inactive at the time of the 1992 surveys, and therefore originally shown as inactive in Exhibit 3-8 of the DEIS. Exhibit 3-8 has been revised to reflect correct lek designations as per your information. Also, limitations of surveys have been revised to read ".....surveys were conducted to the extent possible, following techniques outlined in the Handbook....".

BLM personnel monitor leks on an annual basis and will apply necessary avoidance and mitigation measures described in Chapter 2, Section 2.3.4.2.7 of the DEIS, based on current, site-specific data, and will integrate these measures into the APD/ROW approval process.

Response 11: Mitigation measures prescribed in the EIS will be applied on privately owned surface and State of Wyoming lands unless otherwise specified by the involved private and/or State surface owners. An exception to a mitigation measure and/or design feature may be approved on public land on a case-by-case basis when deemed appropriate by the BLM. An exception would be approved only after a thorough, site-specific analysis determined that the resource or land use for which the measure was put in place is not present or would not be significantly impacted.

2.2.15 Letter from Wyoming Game and Fish Department, Continued

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11, Cont'd.

contractual mitigation agreements which can be reliably executed and therefore, affirmatively support the decision. A mitigation agreement can be with the private landowner or, if that individual is not receptive, mitigation can be relocated to other suitable federal, state, or private surfaces. The point is, NEPA requires use of all practicable means to mitigate. Negotiation of a mitigation strategy before the NEPA document is written is one practicable means of assuring impacts on private land will be mitigated. The option of relocating mitigation to public land always exists. We request BLM provide a plan to mitigate impacts on private and public land in an executable format within the FEIS. Compulsory mitigation of impacts is essential to support a finding of no significant effect.

12

This project will improve the road and pipeline infrastructure throughout the area, which will increase the likelihood of additional gas being drilled and developed on adjoining state and private lands. We believe this additional development is reasonably foreseeable. Therefore, the potential impacts should be considered in a cumulative impacts assessment.

13

- 9) RE: Sage Grouse Mitigation Effectiveness (Sec 2.3.4.2.7, p 2-43) -- The Great Divide Area has not been intensively searched for sage grouse leks and additional leks are discovered every year. At least three leks have been discovered in the Greater Wamsutter II area in the past three seasons. It is probable much of the associated nesting and brood rearing habitats exist within leases issued prior to discovery of these leks, hence no protective stipulations have been applied. The only protection would be that defined in the FEIS. Disturbance limitations should be applied to construction activities on all leases and surface ownerships within the EIS area in order for the conclusion of no significant impact to be valid.

14

- 10) RE: Adjacent Projects (Sec 2.7.2, p 2-53) -- Exhibit 2-15 does not identify the extensive Amoco Continental Divide gas development project immediately north and west of the GWA II. BLM personnel have been aware of the project for nearly a year and it may add 2070 gas wells in this region. The Amoco project should be included in the cumulative impact analysis for Greater Wamsutter II [40 CFR 1502.16(a) & (b); 40 CFR 1508.8; and 40 CFR 1508.7]. The document should also include the Amoco Project near Bairoil.

RESPONSE

Response 12: Impacts occurring on state and private lands within the GWA II were incorporated into the cumulative impacts analysis (Section 2.7.2 Cumulative Effects). All discernable existing disturbance was identified, delineated, and mapped using aerial photography taken on the GWA II in May 1994. Ten categories of disturbance were identified in the cumulative impacts analysis process and the area of impact determined relative to the total Greater Wamsutter analysis area, including all federal, state, and private lands. Cumulative impacts associated with development of the proposed action and alternatives were projected over the entire GWA II drainage basins and herd units (those within and adjacent to the GWA II), including development activities likely to occur on state and private lands.

Response 13: Gas leases may be active for the full ten years while some expire prior to that time frame. Since wildlife is dynamic, there will be times when specific leks are discovered after the competitive lease sale has occurred. When leks are discovered by BLM, USFS, FWS, and/or WGFD specialists they are put on overlays at the resource area office. These overlays are checked for wildlife stipulations at the APD/EA stage for each well or project developed on federal lands. Stipulations for new leks will be placed on the APD/project at that time. Crucial winter ranges are updated by WGFD and BLM specialists every five (5) years and raptor nests are updated as soon as they are discovered.

Response 14: See Response 3 to WGFD Letter No: 15.

The cumulative impacts analysis for the GWA II EIS was prepared following direction provided in the BLM document "*Guidelines for Assessing and Documenting Cumulative Impacts, BLM, April 1994*". Existing disturbance within the GWA II was calculated using current aerial photography (May 1994). The geographic area outside the GWA II considered in the cumulative impacts analysis for soils, vegetation and wetlands, and water resources was based on the USGS delineated watershed boundaries that the GWA II covered or touched. Existing disturbance in the cumulative impacts analysis area was initially estimated from USGS topographic maps that were current for 1985. Because additional disturbance has occurred in the area since the maps were published, existing

2.2.15 Letter from Wyoming Game and Fish Department, Continued

RESPONSE

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15 11) RE: Black-footed Ferrets (Sec 3.7.3.1, p 3-50) -- The EIS states that surveys in 1992 and 1994 found "no conclusive evidence" of black-footed ferrets in the GWA II. What constitutes "conclusive evidence"? What did the analyses of the unidentified scat samples reveal? Was any inconclusive evidence found that would suggest the possibility of ferrets in the GWA II, or a need for further surveys? We defer further comments relative to ferret clearances to the USFWS.

16 12) RE: Ferruginous Hawk Nests (Sec 3.7.4.2, p 3-55) -- Mitigation measure 7 would impose restrictions on construction activities within 3/4 mile of active raptor nests during the nesting season. However, surveys to locate nests only extended 1/2 mile beyond the GWA II analysis area boundary. Since construction activities may occur up to the boundary of the analysis area, surveys should have extended at least 1/4-mile farther to comply with this mitigation requirement. We recommend surveys extend at least 1 mile from the boundary.

17 13) RE: Desert Elk Herds (Sec 3.7.4, p 3-61) -- The Shamrock Elk Herd inhabits areas north and east of Wamsutter year round. Therefore, the Steamboat elk herd is not the only elk herd in the state that exists almost entirely on the sagebrush desert ecosystem. BLM should make this correction.

18 14) RE: Additional Sage Grouse Lek (p 3-61) -- An active lek was discovered in NE1/4 Sec 22, T20N, R92W, but has not been included in the DEIS. Twenty-two males and 16 females were observed on 31 March, 1993 by WGFD personnel.

19 15) RE: Sage Grouse Leks (Sec 3.7.5, p 3-61) -- As mentioned in comment 7, not all aerial surveys in the analysis followed protocol described in the WGFD Handbook of Biological Techniques. The 1992 surveys were flown in late April, but the primary breeding activity was earlier that year because of a mild, dry spring. Activity may have been missed on several leks. The DEIS should disclose these limitations.

The term "historical" applied to sage grouse leks usually describes a breeding site that has been abandoned. The term "documented leks" would be more appropriate to describe most leks in the GWA II.

Response 14, Continued.

disturbance not shown on those maps was estimated based on the level of additional activity measured in the GWA II as evidenced from the aerial photography. The Amoco project near Bairoil did not occur within the delineated watershed boundaries, and therefore, was not included in the cumulative impacts analysis for soils, vegetation and wetlands, and water resources.

Cumulative impacts analysis for wildlife were calculated at the herd unit level. These calculations were limited to pronghorn since it is the only big game species that has crucial range on the Greater Wamsutter analysis area. Calculations were performed for both the Red Desert and Bitter Creek Herd Units and were based on existing surface disturbances visible on updated USGS (1981) quad maps. The Amoco Bairoil project area is located on the northern end of the Red Desert Herd Unit, but the project was not included in the cumulative impacts analysis, primarily because of the spatial distance between the GWA II and Bairoil (approximately 33 miles). Disturbance associated with this development has subsequently been included in the Wildlife Analysis and Cumulative Impacts Analysis in this FEIS.

Response 15: Reference to unidentified scat samples has been dropped from the text. Several scat samples and prairie dog carcasses were sent to the WGFD lab and were analyzed by Tom Moore (scat and hair analyses) in consultation with Tom Thorne. Carcass analyses were performed by Beth Williams. Although several scat samples showed some characteristics of black-footed ferret, all were determined to be from species other than black-footed ferret. All analysts involved concluded that none of the materials examined could be definitely classified as black-footed ferret in origin.

Response 16: Text has been revised to reflect the comment that all nests within one-mile of the analysis area boundary have been included. This adds one eagle nest south of the GWA II. There are no text changes to raptors since the percentage remains the same.

2.2.15 Letter from Wyoming Game and Fish Department, Continued	RESPONSE
<p>Ms. Julie Hamilton March 15, 1995 Page 8 - EIS 6719</p> <p>20 16) RE: Sage grouse Hunting Seasons (Sec 3.9, p 3-65) -- Sage grouse hunting seasons have not extended into October for at least 19 years. Recreational use of this area by sage grouse hunters is in September, and also the last few days of August in some recent years.</p> <p>21 17) RE: Antelope Hunt Area 54 (p 3-65). Antelope Hunt Area 54 has been eliminated and is now incorporated into Hunt Area 57.</p> <p>22 18) RE: Big Game Significance Criteria (p 4-47). The DEIS considers an increase in wildlife mortality to be significant if the collective mortality from road kills, poaching, and/or harassment "exceeds levels by an amount that makes agency wildlife population goals unachievable." This is inappropriate. For example, high mortality could impact legal harvest quotas, while still meeting the objective. Poaching and harassment may also impact habitat effectiveness by reducing animal tolerance to routine activities on crucial winter range and causing avoidance reactions. Natural fluctuations can mask specific causal factors in a population decline. BLM should consider any increase in wildlife mortalities within the project area as "significant," rather than attempting to relate this to the entire herd unit. The Game & Fish objective should not be the measure of significance.</p> <p>23 19) RE: Significance Criteria (p 4-33) -- NEPA does not impose or authorize "threshold of significance" standards which must be met before mitigation is triggered. BLM should remove the threshold of significance criteria from this NEPA document. Agencies must use all practicable means to mitigate adverse effects upon the human environment [40 CFR 1500.2(f)], including cumulative effects [40 CFR 1508.8(b)]. There is no mention of significance. Even so, significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment [40 CFR 1508.27(b)(7)]. The cumulative impacts analysis on page 4-65 indicates 2,040 acres or .9 percent of crucial range will be impacted by past, present, and reasonably foreseeable activities in the Red Desert Herd. However, comment 10 points out several projects were not considered in the analysis. Furthermore, reduced habitat effectiveness from displacement effects has not been considered. We believe the total impact substantially exceeds BLM's arbitrary significance criterion. Therefore, all impacts to crucial range should</p>	<p>Response 17: The text has been modified to include the Shamrock elk population. The original DEIS statement was taken from the 1993 WGFD Annual Big Game Herd Unit Report (pg. 319) where WGFD biologist Tom Christenson is describing the Steamboat elk herd and states that "It is the only elk herd in the state which exists almost entirely on the sagebrush desert ecosystem".</p> <p>Response 18: Text and Figure have been revised to reflect the new lek.</p> <p>Response 19: These limitations have been addressed. See Response No. 10 of comment letter 2.2.15 (WGFD). Text is revised as requested. Historical is changed to "documented" or "previously documented".</p> <p>Response 20: Text is revised to reflect recommended changes. Wording "and October" is deleted, and page 3-65 reference changed to page 3-66.</p> <p>Response 21: Text is revised to reflect recommended changes. "54" deleted.</p> <p>Response 22: Impact significant threshold and references to significance have been removed. Also, see Response No. 3 and Response No. 23 to WGFD Letter No. 2.2.15.</p> <p>Response 23: See Response 22 to WGFD Letter No. 2.2.15.</p> <p>Long-term impacts are not the same as permanent impacts. The analysis does not disclose that 195 acres of pronghorn crucial winter range will be permanently impacted. Additional discussion of the potential for pronghorn displacement from winter range has been added to the text.</p>

2.2.15 Letter from Wyoming Game and Fish Department, Continued

RESPONSE

Ms. Julie Hamilton
March 15, 1995
Page 9 - EIS 6719

be considered significant in GWA II. Significance cannot be avoided by breaking an action or sequence of actions down into small increments [40 CFR 1508.27].

There is no defensible rationale for defining a significant impact to big game as a project-related loss that exceeds 1 percent of the crucial winter range within a herd unit. This arbitrary decision criterion contradicts the mitigation requirements of NEPA and is damaging to the resource.

Full project development will permanently impact at least 195 acres of pronghorn crucial winter range in the the GWA II project. Habitat effectiveness of crucial range could be reduced over a much broader area due to displacement and disruption of movement patterns. The extent of displacement should be determined through monitoring. The DEIS should include an explicit plan to mitigate the 195 acres permanently affected, and an executable contingency plan that compensates any loss of habitat effectiveness documented through monitoring (ie, displacement). Compulsory mitigation contingencies should be defined in the FEIS to support its findings.

20) RE: Reclamation Effectiveness (Sec 4.7.3.1, p 4-48) -- The DEIS estimates 2,416 acres would be disturbed by this project, and states this impact would be reduced by reclamation of areas no longer needed for production. What proportion of this 2,416 acres is likely to be reclaimed? Under what time frame? These questions need to be answered in order for the DEIS to provide an accurate analysis of impacts in Section 4.7.2.

21) RE: Impacts to Candidate Species (Sec 4.7.3.1.2, p 4-50). The DEIS correctly states that impacts to nesting ibises could be prevented by avoiding construction within suitable nesting habitats during the nesting period. Is the BLM planning on requiring this mitigation? A commitment to apply this additional mitigation is necessary for the conclusion of no significant impact to be valid. The same comment would apply to mitigation measures that are described for mountain plovers and loggerhead shrikes. The DEIS should state that each of these supplemental mitigation measures will be required for all drilling and construction within the GWA II analysis area. Is monitoring planned to detect these conflicts?

Response 24: This text has been rewritten to reflect post-reclamation disturbance estimates and time frames for re-establishment of various types of vegetation.

Response 25: See Response 2 to WGFD Letter No. 2.2.15.

2.2.15 Letter from Wyoming Game and Fish Department, Continued	RESPONSE
<p>Ms. Julie Hamilton March 15, 1995 Page 10 - EIS 6719</p> <p>26 22) RE: Well Density Impacts (Sec 4.7.3.1.3, 4-52) -- Assuming mitigation is developed and required for impacts to antelope crucial winter range, the analysis will be valid only so long as well density remains under the WOGCC approved limit of 2 wells per 640 acres. Subsequent efforts to increase this limit would invalidate the conclusions of the DEIS and should be considered only after a supplemental environmental assessment is completed and mitigation redefined.</p> <p>27 23) RE: Sage Grouse Mitigation (Sec 4.3.1.4, p 4-54) -- The DEIS does not provide the data necessary to determine if loss of nesting habitat would impact sage grouse. Please estimate how many acres of the GWA II are suitable nesting cover and how much of this will be lost. These questions need to be answered in order to define mitigation in Sec 4.7.2.</p> <p>28 The analysis does not address the impacts continuous or periodic loud noises may have upon breeding sage grouse. The drastic decline in attendance at the lek in Sec 2, T20N R95W within the GWA II area coincided with the use of an extremely loud propane compressor on a well 2.2 miles to the west-northwest. Even at this distance, the pump was the only sound that could be heard in the early morning hours during surveys to monitor activity at this lek in 1989 and 1990. Abandonment of a second lek within the GWA II area in 1993 coincided with the use of a poorly muffled compressor 1/4 mile from the lek. Mitigation provisions in the EIS should require effective mufflers on all compressors to minimize this impact. We also recommend a requirement throughout the breeding season (March through mid-May) to limit all noise producing activities to 55 dBA or less measured at 500 ft from the source.</p> <p>29 24) RE: Impacts to Burrowing Owls (Sec 4.7.3.1.5, p 4-54) -- The DEIS identifies a mitigation that would minimize impacts to burrowing owls, but lacks the commitment to assure implementation.</p> <p>30 25) RE: Human-Related Impacts (Sec 4.7.3.1.7, p 4-56) -- The DEIS should require UPRC to provide its employees instruction about the sensitivity of wildlife, potential impacts to these species, and measures to avoid and minimize impacts. Simply stating that this instruction "should" occur is not executable mitigation and does not support the findings in the DEIS.</p>	<p>Response 26: Agree. Well densities that exceed WOGCC approved spacing would increase the potential disturbance to various habitats and substantially alter the results and final conclusions of the analysis. Supplemental environmental documentation would be necessary if this were to occur.</p> <p>Response 27: Because no detailed vegetative cover data or maps are available, a quantification of total nest habitat or the amount that will be disturbed is not possible. An approximation of the number of acres of nesting habitat within the 2-mile radius of the 13 active leks on the area that may be disturbed by development activities has been made and incorporated into the analysis. BLM personnel monitor leks on an annual basis and will apply additional avoidance and mitigation measures based on current site-specific data and integrate these into the APD/ROW permitting process.</p> <p>Response 28: This scenario has been addressed by adding a separate section entitled Noise under each of the proposed alternatives.</p> <p>Response 29: This comment has received general attention by including a more "in-depth" analysis of potential impacts to the burrowing owl as a result of its recent (Nov. 1994) listing as a C2 Candidate Species. Also, see Response 2 to WGFD Letter No. 2.2.15.</p> <p>Response 30: See Response 2 to WGFD Letter No. 2.2.15. Normally these are measures the BLM can only suggest, but not require.</p>

2.2.15 Letter from Wyoming Game and Fish Department, Continued

RESPONSE

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Response 31: See Response 2 to WGFD Letter No. 15.

Response 32: See Response 3 to WGFD Letter No. 15. Cumulative impacts analysis information regarding the Bairoil project and Carbon County UCG project have been included in the Supplemental Cumulative impacts analysis discussion provided with this FEIS.

31

26) RE: Executable Mitigation (Sec 4.7.4, p 4-62) -- The DEIS concludes "significant impacts to wildlife are not expected," but this conclusion assumes the supplemental mitigation measures described for individual species will be applied. There are no affirmative commitments to apply these mitigations. BLM only states they could be effective if they were applied. 40 CFR 1500.2 specifies agencies shall "... use all practicable means ...to... minimize adverse effects of their actions upon the quality of the human environment. 40 CFR 1502.3 stipulates, "... Mitigation and other conditions established in the environmental impact statement or during its review and committed as part of the decision shall be implemented by the lead agency or other appropriate consulting agency. The lead agency shall ... include appropriate conditions in grants, permits or other approvals." The lead agency cannot support or defend its selection of an alternative by referencing a process (e.g., APDs) that may never achieve mitigation.

32

27) RE: Cumulative Impacts Analysis (Sec 4.7.5 and 4.7.5.1, pp 4-63 and 4-65) -- The cumulative impacts analysis in this DEIS is substantially deficient. Calculations of existing habitat disturbances were determined using 1981 topographic maps. Even when they were current, the maps did not identify all roads and disturbed sites. Aerial photos of the Muddy Creek/Red Rim CRM area exhibited vast road networks that did not appear on topographic maps. In most cases, the maps showed only a minority of the roads that existed in the area. In addition, substantial oil and gas development that has taken place in the GWA II analysis area throughout the past 14 years has not been included in the cumulative analysis. We recommend BLM employ recent aerial photography to identify current areas of habitat loss.

The cumulative analysis fails to consider the Amoco Continental Divide natural gas development project immediately north and west of this project. BLM personnel have been aware of this project for nearly a year. The analysis also does not include the Amoco Project at Bairoil which impacted crucial antelope winter range within the same herd unit as this project. The analysis refers to the Carbon County underground coal gasification project west of Rawlins, but incorrectly stated that this project was located outside the big game herd units involved in the GWA II area. Not only is CCUCG within the same Red Desert antelope herd unit, but it will lie entirely within crucial

2.2.15 Letter from Wyoming Game and Fish Department, Continued

RESPONSE

Ms. Julie Hamilton
March 15, 1995
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winter range for this herd. The impacts of the GWA II project on antelope crucial winter range become much more significant when these other projects are accurately presented.

28) RE: Sage Grouse Impacts (Sec 4.7.5.4, p 4-67) -- Conclusions on the impacts to sage grouse are not valid unless the supplemental mitigations described in the DEIS are executed and applied to all gas developments within the GWA II analysis area and within all surface ownerships. By improving road and pipeline infrastructure, this project will increase the likelihood of development on state and private lands.

29) RE: Recreational Impacts -- (p 4-76). The DEIS concedes that recreational impacts would be significant and the proposed mitigation measures are inadequate to address this issue. We do not believe all reasonable alternatives have been explored to mitigate this impact [40 CFR 1500.2, 40 CFR 1502.2 and 14(f), and 40 CFR 1502.16(h)]. For example, one mitigation could involve consolidation of checkerboard lands to improve access. Another could include acquisition of access easements. BLM should develop effective mitigation alternatives to address this impact and include executable implementation procedures. Project proponents and BLM should assume responsibility for implementing mitigation to comply with the above requirements.

30) RE: Noise Impacts (Sec 4.15.6, p 4-100) -- As indicated previously, to reduce the potential for noise to impact sensitive wildlife species, particularly sage grouse during the breeding season, noises should be muffled to less than 55 dBA at 500 ft from the source. This was done at the Creston/Blue Gap project. The 3,500-ft distance proposed here will be ineffective. Loud, repetitive or continuous noises prevent hens from hearing and locating strutting cocks during the breeding season, lowering the conception rate. Noises may also discourage sage grouse cocks from strutting and may prevent yearling cocks from locating traditional strutting grounds. The EIS should require highly effective mufflers on all gas compressors and other equipment to minimize this impact.

Response 33: Mitigation measures specified in the analysis are assumed to be applicable to impacts on all lands, regardless of ownership. Mitigation cannot be required by the BLM on State and private lands. However, the GWA II operators will coordinate with State and private land managers to determine which measures would be applied, to what degree, and where. The mitigation measures described in Chapters 2 and 4 of the DEIS will be considered for application to all BLM administered lands.

Response 34: It is unclear from the comment whether the proposal is to consider additional mitigation measures within the GWA II, or on adjoining areas. There are certain restrictions that prohibit the BLM from requiring operators to explore off-site mitigation. (See Response 9 to WGFD Letter No. 2.2.15). The BLM will consider the possibility of entering into access agreements or exchanges in any area that currently has restricted public access when the opportunities arise. However, to enter into access agreements within the GWA II would only serve to intensify problems with user displacement and reduced recreation levels of satisfaction.

Response 35: See Response 28 to WGFD Letter No. 2.2.15.

2.2.15 Letter from Wyoming Game and Fish Department, Continued

RESPONSE

Ms. Julie Hamilton
 March 15, 1995
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Thank you for the opportunity to comment.

Sincerely,



JOE WHITE
 DEPUTY DIRECTOR

JW:TC:as
 cc: Wildlife, Fish, HATS Divisions

2.2.16 Letter from Marathon Oil Company

RESPONSE



Rocky Mountain Region

P.O. Box 2690
Cody, Wyoming 82414
Telephone 307/587-4961

RECEIVED

March 27, 1995

95 MAR 29 10 46

Mr. John Spehar
Rawlins District Office
Bureau of Land Management
P.O. Box 670
Rawlins, Wyoming 82301Greater Wamsutter Area II Natural Gas Development Project
Draft Environmental Impact Statement

Dear Mr. Spehar,

Marathon Oil Company appreciates the opportunity to comment on the above referenced project Draft EIS. As a company that is committed to continuing their operations in this state, Marathon is very interested in any proposed management policies that could have an impact on our leaseholds and production operations.

In general, we support the BLM's Preferred Alternative that proposes allowing operators to develop 750 wells and 300 well locations in addition to the existing operations. It is encouraging that economic development is allowed for the survival of our industry as well as continued financial support for the surrounding communities.

Rather than repeat specific concerns that our industry's association has already submitted to the BLM, Marathon would like to be on record in support of the comments from the Petroleum Association of Wyoming. As indicated by the Petroleum Association, we also think it is of great importance to reduce our dependence on foreign oil.

Other specific comments - Section 2.3.4.2.7, Wildlife. The proposed mitigation measure is "Inform all project employees of applicable wildlife laws and penalties associated with unlawful take and harassment." We believe that it is unnecessary to request that the operator be the "instructor" to every employee or contractor in the area.

Additionally, we believe that the BLM does not provide sufficient justification for restrictions on our industry in order to prevent any possible impact on wildlife. It is our opinion there are many studies on other sources that can negatively influence wildlife survival than our industry. For instance, published articles indicate that predators create significant impact on wildlife. Recent articles in the monthly publications of Ducks Unlimited and The North American Pronghorn Foundation are but two sources of studies of the effect of predators. Those articles can be

A subsidiary of USX Corporation

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: See Response No. 5 to Letter No. 2.2.10 (Amoco).

Response 2: Predator/prey responses and weather conditions are just two of the many natural processes that create the high desert ecosystem. The BLM is concerned that industry activity will create both additional and interactive pressure on wildlife. Timing stipulations and mitigation measures reduce impacts to wildlife when they are physically the most vulnerable (i.e. breeding periods, winter conditions, etc.). Informal consultation between agencies, such as the WGFD and the USFWS, may lead to mitigation measures that reduce impacts that may occur as a result of increased activity and production within crucial habitats for wildlife species.

2.2.16 Letter from Marathon Oil Company, Continued

RESPONSE

2, Cont'd.


Mr. John Spehar
March 27, 1995
Page 2

provided to the BLM. Also, it has been reported that drought in the region has contributed to the reduction in wildlife. Federal agencies need to start considering these impacts also.

In conclusion, Marathon would like to continue to receive information on this project as it becomes available to the public. If there are questions regarding this matter, please advise.

Sincerely,

MARATHON OIL COMPANY



Pat Childers
Government Affairs Coordinator
Rocky Mountain Region

cpc/ (3152 - 24)

cc: LMM, GML
Kathy Springer, PAW
Claire Moseley, RMOGA

2.2.17 Letter from Meridian Oil Inc.**RESPONSE****MERIDIAN OIL**

March 27, 1995

RECEIVED

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P. O. Box 670
Rawlins, Wyoming 82301

55 MAR 27 1995

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Re: Greater Wamsutter Area II
Draft Environmental Impact Statement

Dear Mr. Spehar:

Meridian Oil Inc. (Meridian) is the largest independent (non-integrated) oil and gas company in the United States in terms of total domestic proved equivalent reserves. Those reserves were estimated at 6.6 TCF on December 31, 1994. We are the lessee of approximately ten percent of the federal leases held by production and operate approximately ten percent of all wells located on federal oil and gas leases. We have recently acquired interest in nearly 5600 net acres of leasehold within the Greater Wamsutter II Area (GWAI) and are therefore interested in how this draft EIS may affect these interests.

We understand that four management alternatives have been analyzed in this draft document. The Proposed Action provides a maximum development scenario of 750 wells and 300 locations, in addition to existing operations. Alternative A provides for an optimal scenario of 300 wells and 250 well locations, in addition to existing operations. Alternative B would allow operators a minimum development scenario of 225 wells and 200 locations, in addition to existing production, and Alternative C is the no action alternative.

Union Pacific Resources, Amoco, and other operators within this area have already proposed to drill and develop a total of 750 wells, along with the existing drilling and production operations within the analysis area. The Proposed Action would allow for this continued development as well as provide for full development of the natural gas fields. Meridian supports the Proposed Action, however we suggest that the following comments be considered in the final EIS:

- 1 ♦ Section 2.3.2.3, page 2-11: The requirement that all permanent roads must be designed and staked under the direction of a licensed, professional engineer is unnecessary. This should be determined by the authorized officer on a case by case basis where deemed necessary for safety and/or topographic reasons. An arbitrary, across the board requirement such as this is extremely expensive to the operators and is simply unnecessary in many cases.
- 2 ♦ Section 2.3.2.3, page 2-12 and 2.3.4.2.13, page 2-45: These paragraphs on developing an area-wide plan for road development and maintenance are unclear. Is it expected that there would be one specific transportation and road network plan for all of industry for the next five

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: See Response No. 1 to Letter No. 2.2.11 (PAW).

Response 2: See Response No. 1 to Letter No. 2.2.10 (Amoco).

2.2.17 Letter from Meridian Oil Inc., Continued

RESPONSE

Comments to GWAI Draft EIS
Page 2

to ten years? That is a difficult request as development plans would differ from one company to the next along with each company's economic situation. Who would be responsible for completing the plan and not to mention the subsequent implementation and policing? This should be the BLM's responsibility, not the individual company's.

♦ Section 2.3.4.2.3, page 2-35: Limiting construction to when the soils are dry or not frozen would not leave much time in the year for construction operations in Wyoming. It would be reasonable to reword this to "Frozen or saturated soils will not be used as construction material".

♦ Section 2.3.4.2.5, page 2-40: It would be most practical to leave the seeding and stabilizing of disturbed areas as recommendations. The final reclamation plan for each specific site should be left up to the Authorized Officer, private surface owner (when applicable), and operator. The recommendations in this draft, Appendix B, may become outdated as techniques, seed mixtures, and ideas are developed or refined.

♦ Section 2.3.4.2.5, page 2-40: Who would design the noxious weed monitoring program, the operator or the BLM? What would this program entail? Other BLM offices have decided against such programs because of the difficulties of implementation and enforcement. Recommendations on how to promote immediate stabilization, prevent invasion of noxious weeds, and reduce over-competition to benefit native species could be provided to the operator by the BLM at the project level.

♦ Section 2.3.4.2.5, page 2-41: Would the BLM conduct the site-specific survey for special status plants or is it up to the operator? BLM should make its best effort to do so. The BLM is staffed with experts in this field and is ultimately responsible for conducting these surveys. However to expedite the permitting process, industry all too often funds these surveys.

♦ Section 2.3.4.2.7, page 2-43: Relocating drilling sites to avoid white-tailed prairie dog colonies is an unrealistic mitigation measure. It should be related to burrow density and/or size criteria. It is not practical to require that industry avoid prairie dog colonies that are not suitable black footed ferret habitat.

♦ Hazardous Materials, page 2-46: Reference is made throughout this section to the transporting of chemical and hazardous materials. Transportation of such materials is not covered by SARA or RCRA, but is covered by DOT regulations and is controlled by the contractor doing the actual transporting. Moreover, the operator typically hires a drilling contractor to drill the well. The drilling contractor must maintain the MSDS's at the drillsite, not at the field office of the operator.

Meridian appreciates the opportunity to comment on this draft EIS and we hope that our recommendations are considered in the final GWAI EIS. Please contact me if you would like clarification or more information on any of our recommendations.

Sincerely,



Eileen Danni Dey
Regulatory Compliance Administrator

Response 3: See Response No. 2 to Letter No. 2.2.10 (Amoco).

Response 4: See Response No. 3 to Letter No. 2.2.10 (Amoco).

Response 5: See Response No. 4 to Letter No. 2.2.10 (Amoco).

Response 6: It is the responsibility of the BLM to complete these surveys. The BLM however, has neither the manpower nor funding to conduct these surveys on 4.3 million acres in the Great Divide Resource Area. Therefore, it is often in the company's best interest to hire consultants to complete T&E and sensitive wildlife species inventories on development sites. If the company has a good idea as to their development schedule, then block surveys are the best approach to this process.

Response 7: See Response No. 6 to Letter No. 2.2.10 (Amoco).

Response 8: Agree with this comment. See Response No. 7 to Letter No. 2.2.10 (Amoco), and Response No. 8 to Letter No. 2.2.11 (Petroleum Association of Wyoming).

2.2.18 Letter from Williams Field Services

RESPONSE

WILLIAMS FIELD SERVICES
ONE OF THE WILLIAMS COMPANIES

ROCKY MOUNTAIN AREA OFFICE
STAIR ROUTE 2, BOX 260
GREEN RIVER, WYOMING 82901
(307) 872-2000
FAX (307) 872-2000

95 MAR 29 1995
March 27, 1995

W. BUREAU
GREATER
RAWLINS

Mr. John Spehar
Bureau of Land Management
Rawlins District Office
P.O. Box 670
Rawlins, WY 82301

Re: Draft EIS for the Greater Wamsutter Area II Natural Gas Development

Dear Mr. Spehar:

Williams Field Services has reviewed the above referenced Draft EIS and supports the Proposed Action (preferred alternative) providing for a maximum development of 750 wells and 300 locations.

As noted in 2.3.3.1 Pipeline Construction, Williams Field Services currently owns and operates an existing gas gathering system in the DEIS area. Williams agrees that new pipeline connections should follow existing pipeline or road corridors where possible. However, the location of existing pipeline facilities in relation to the new connection should also be evaluated. For example, a shorter, more economical connection point may be in a different direction from the well access road. Please consider that unlike the road disturbance, the pipeline right of way will be reclaimed upon completion of construction.

Thank you for the opportunity to comment on the draft EIS.

Sincerely,

Dianne P. Casalena
Dianne P. Casalena
Land Representative

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: BLM, in cooperation with the natural gas pipeline proponent, will review any proposed pipeline routes on the ground to determine the most economical and environmentally suitable pipeline route as a part of the ROW approval process.

2.2.19 Letter from F. Earline Hittel, North Platte Group Sierra Club

RESPONSE

John Spehar
Bureau of Land Management
Rawlins District Office
P.O. Box 670
Rawlins WY 82301

RECEIVED

JUL 28 1995

Dear Sir:

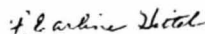
BLM BUREAU OF LAND MANAGEMENT
CFLC

I feel that the Draft Environmental Impact Statement on the Union Pacific Resources Company Greater Wamsutter Area II Natural Gas Development Project should address an expanded area because of the amount of drilling that is being proposed.

The effect that the drilling will have on wildlife seems to have been downplayed and the multiple use aspect appears to have been ignored.

I am also concerned that altho there are Draft EIS's on each of the natural gas development projects in southwestern Wyoming I do not feel that the total cumulative effect has been either addressed or considered.

Thank you,



F. Earline Hittel
36 Begonia
Casper, WY 82604
Membership Chair, North Platte Group Sierra Club

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: See Response 1 to WGFD Letter No. 2.2.15.

Response 2: A comprehensive analysis of potential impacts to wildlife and their habitats was provided in the DEIS. Additionally, text was rewritten to reflect responses to WGFD comments and concerns; these changes are provided in the Errata.

Response 3: See Response 14 to WGFD Letter No. 2.2.15.

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General Response

1

2.2.20 Letter from Randall Taylor

Randall Taylor
170 Wood St.
Lander, WY 82520

25 March 1995

Rawlins District
Bureau of Land Management
P.O. Box 670
Rawlins, WY 82301

Subject: Draft EIS for Greater Wamsutter Area II Natural Gas Development Project

Dear Rawlins District EIS Team Members:

Regarding the above referenced draft EIS, my comments are concerning the wildlife impacts due to habitat displacement and impacts from increasing an already overly abundant network of roads.

Our country needs to develop our mineral reserves. We also need to preserve our wildlife heritage. Additional roads to serve new drill sites and production locations also serve as starting points for even more roads to branch off by the high capacity motorized vehicles that are ever increasing in this area.

I believe we need to proceed with the proposed mineral development, however impacts to wildlife and other remote country values need to be mitigated. Many of the natural resources in this area have suffered from past mineral development. The time has come that developers must mitigate impacts and recover some of the lost ground from past development. Developers need to be required to reclaim two miles of road for every one mile of road they construct. This would provide some mitigation and it would increase the incentive for developers to plan carefully to limit the amount of road building.

If the economics are not currently present to provide mitigation of impacts, then we need to leave minerals in place until the economics do exist. We'll still need these resources in the future and they can be developed properly when the economics are workable.

Thank you for considering my comments.

Sincerely,

Randall Taylor
Randall Taylor



RESPONSE

General Response: Thank you for taking the time to review the DEIS and providing your comments.

Response 1: Mitigation measures necessary to eliminate or reduce impacts to the various resources within the GWA II as a result of proposed development have been provided in the EIS. The operators have provided mitigation measures in Chapter 2 of the EIS, and additional mitigation measures not identified by the operators have been developed through analysis in Chapter 4. These measures will become a part of the Record of Decision prepared by the BLM. Potential impacts to wildlife have been analyzed in detail in Chapter 4, Environmental Consequences, and appropriate mitigation to reduce or eliminate impacts identified.

2.2.21 Letter from Independent Petroleum Association of Mountain States, Continued

RESPONSE



IPAMS
Independent
Petroleum
Association
of
Mountain
States

620 Denver Club Building • 518 17th Street • Denver, Colorado 80202-4167 • 303/623-0987 • FAX: 303/993-0709

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Regulatory Affairs
Paul G. Gagnon
Director of
Technology Transfer

General Response

24 March 1995

John Spehar
Bureau of Land Management
Rawlins District Office
P.O. Box 670
Rawlins, WY 82301

Dear Mr. Spehar:

The Independent Petroleum Association of Mountain States (IPAMS) is a non-profit, non-partisan trade association representing the interests of over 750 independent oil and natural gas producers, royalty owners, industry consultants and service/supply companies operating in a ten-state Rocky Mountain area: New Mexico, Wyoming, Colorado, Montana, North Dakota, Utah, Nebraska, South Dakota, Nevada, and Arizona.

The Gas Research Institute (GRI) based in Chicago has designated IPAMS as the GRI Rocky Mountain Regional Technology Transfer Agent (RTTA). IPAMS and GRI have formed a strategic alliance to transfer technology to independent producers, service companies, and consultants in the Rocky Mountain states. In line with GRI's goal of reducing exploration and production costs and assuring an adequate long-term supply of natural gas, the objective of this program is to increase the number of independent producers who are implementing advanced technologies. IPAMS/GRI is also committed to working with government agencies in order to make them aware of the opportunities and information available from the IPAMS/GRI program.

IPAMS submits these comments in response to the Bureau of Land Management's (BLM) Draft Environmental Impact Statement (DEIS) Union Pacific Resources Company Greater Wamsutter Area II Natural Gas Development Project.

The Independent Petroleum Association of Mountain States (IPAMS) is a non-profit, non-partisan trade association representing the interests of independent oil and natural gas producers, royalty owners, industry consultants and service/supply companies operating in a ten-state Rocky Mountain area: Arizona, Colorado, Idaho, Montana, Nebraska, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington and Wyoming.

General Response: Thank you for taking the time to review the DEIS and providing your comments.

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The DEIS analysis area encompasses 334,191 acres of mixed federal, state, and private lands located in Sweetwater and Carbon counties. Approximately 146,912 acres are owned by the federal government. The DEIS analyzes four alternatives. The Proposed Action allows a development scenario of 750 wells and three hundred locations. The BLM states that the development scenario would impact 2,416 acres, bringing the total disturbance within the GWA II area to 14,943 acres of land which amounts to 4.5 percent of the surface area in the GWA II surface area.

IPAMS recommends the BLM adopt the Proposed Action and that the BLM work expeditiously to approve and finalize the project with a final environmental impact statement and record of decision. In addition, IPAMS urges the BLM to diligently work with the operators to ensure that the application for permit to drill (APD) process occurs in a timely manner.

The BLM is subject to many laws and regulations. The primary statutes and regulations are the Mineral Leasing Act, Multiple Use and Sustained Yield Act, the Federal Land Management and Policy Act, and the National Environmental Policy Act. The BLM is responsible for managing the minerals on federal lands. In order to achieve this goal, the BLM's regulations at 43 Code of Federal Regulations 3160 require that the agency ensure that the ultimate maximum recovery of the oil and natural gas resource occurs. IPAMS believes that the BLM needs to approve the Proposed Action in order to fulfill its own regulations of ensuring the maximum ultimate recovery of the oil and gas resource.

Economic and Industry Issues

IPAMS views the document as a significant segment of domestic energy policy. In particular, it is very important for producers in the Rocky Mountain region. This project will allow the development of natural gas, a clean-burning fuel, with minimal environmental impact. Natural gas is a clean fuel which will improve that nation's air quality.

Oil and gas production in Wyoming makes significant economic contributions to the federal government and the State. The MMS distributed \$215.4 million to the State of Wyoming from federal mineral production in the State in 1994. The federal government received approximately \$224 million in royalty revenue from 1994 mineral production in the state.

Sweetwater County's (ranked 2) proportion of taxable valuation in the State for 1994 was 17.08 percent. Carbon County's (ranked

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11) taxable valuation in 1994 was 3.79 percent. Oil and natural gas production paid approximately \$129.9 million in severance taxes to the State of Wyoming in 1994.

1 IPAMS is astonished that the BLM fails to mention any positive economic contributions from natural gas production from the Proposed Action. The federal government will receive several million in royalty revenue over the life of the project as well as the State of Wyoming. The State will also receive several million in tax revenue. A significant portion of this income will be returned directly to the counties and the local schools. The BLM needs to recognize that revenues to federal, State and local governments are a significant portion of the tax base in Wyoming. In addition, local employment increases from natural gas development. When mineral development occurs, the community as a whole benefits. The development of oil and gas creates a revenue base which forms the very fabric of communities in Wyoming. Wyoming has been blessed with rich oil, natural gas, coal, and other minerals which have all contributed to the economic health of the State.

A brief example demonstrates the economic contributions which this project will make to the federal government and the State of Wyoming.

Assume that each well makes 1 Bcf or 1,000,000 Mcf over the life of the well. The federal government takes its royalty share of 12.5 percent which is 125,00 Mcf per well. The project proposes to drill 750 wells. The royalty revenue from this project if the natural gas price averaged \$1.50 Mcf would be approximately \$140,625,000 over the life of the project. This is not an insignificant amount of revenue. Again, the State of Wyoming would receive approximately 50 percent of the revenue. Likewise, if the gas price remained at \$1.50 Mcf for the life of the reserves, in tax income this project would generate approximately \$90,000,000 for the State of Wyoming. These are significant economic contributions and should be considered to facilitate the approval of the Proposed Action.

2 The BLM states that the project's socioeconomic impacts may be negative under the Proposed Action. Particularly in Wamsutter, the BLM states that there may be housing shortages and other adjustment problems associated with rapid economic change. While this may occur in the short term, the overall economic benefits of the proposed action are very positive.

Response 1: As stated in the BLM Mission Statement printed on the inside cover of the DEIS, the BLM is responsible for the balanced management of the public lands and resources and their values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield. The mineral resource is but one of many resources that are to be considered in the management of the public lands.

Response 2: See pages 4-86 to 4-88 of the DEIS. The economic analysis of the proposed action includes a detailed discussion of the economic benefits that would result from the project in the form of employment, income, and tax payments to the state and local units of government. In addition, the analysis clearly states on page 4-88 that the long-term effects of the project would be positive overall.

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Environmental Impacts

In general, the BLM's analysis finds insignificant environmental impacts to the natural resources. Impacts to air quality, soils, water resources, and paleontological resources would be minimal.

3 The BLM raises concerns regarding the project's impact to wildlife resources and habitat. IPAMS points out that this area has a long history of oil and gas development occurring with significant wildlife resources. The BLM and operators have learned to deal with wildlife concerns in a manner which allows for the development of the oil and gas resource while minimizing impacts to wildlife.

4 IPAMS suggests that the BLM analyze the net surface disturbance impacts to wildlife from this project. The BLM states that the development scenario would impact 2,416 acres. Oil and gas development is a temporary disturbance of the surface. Once drilling occurs the primary surface disturbing activity has taken place. The drill pad is reclaimed and the wells are produced until they are plugged and abandoned. The land is then totally reclaimed and returned to a natural state. IPAMS recommends that the BLM consider this important fact when analyzing the impacts of oil and gas development on the surface resources. IPAMS believes that the industry and the BLM can achieve minimal impact to wildlife through implementation of mitigation measures which adequately address these issues at the site-specific level.

IPAMS and the industry are committed to working with the land managing agencies to ensure that oil and gas development occurs in an environmentally sensitive manner. Further, the companies operating in the Greater Wamsutter Area II have proven themselves as conscientious environmental stewards.

IPAMS appreciates your consideration of our comments. As always, please feel free to contact us with any questions or for further information.

Sincerely,



Alexander Woodruff
Director of Regulatory Affairs

Response 3: See Response 8 to Letter No. 2.2.10 (Amoco).

Response 4: Net surface disturbance is calculated in the cumulative impacts analysis. See Response 14 to WGFD Letter No. 2.2.15.

GREATER WAMSUTTER AREA II FINAL EIS

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